AMERICAN GAS JOURNAL

JUNE 1940

YESTERDAY'S PERFORMANCE WON'T DO

in Pressure Regulators eit

TODAY'S modern gas ranges have largely supplanted the old, wasteful, inefficient gas cookers of a few years ago. The development of modern gas burning equipment has given a tremendous impetus to the greater utilization of gas. But, back of the scenes, in the transmission and distribution departments of gas companies, many necessary changes are taking place daily—old, outmoded equipment is being rapidly replaced in order to keep abreast of increased loads with their imperative demands for constant pressure despite fluctuating volume.

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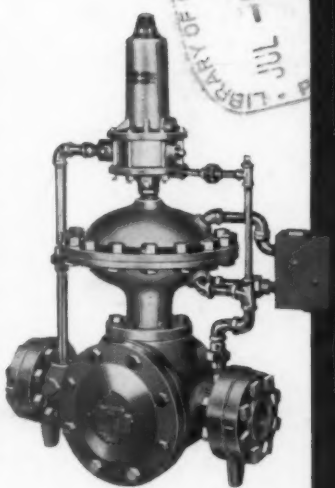

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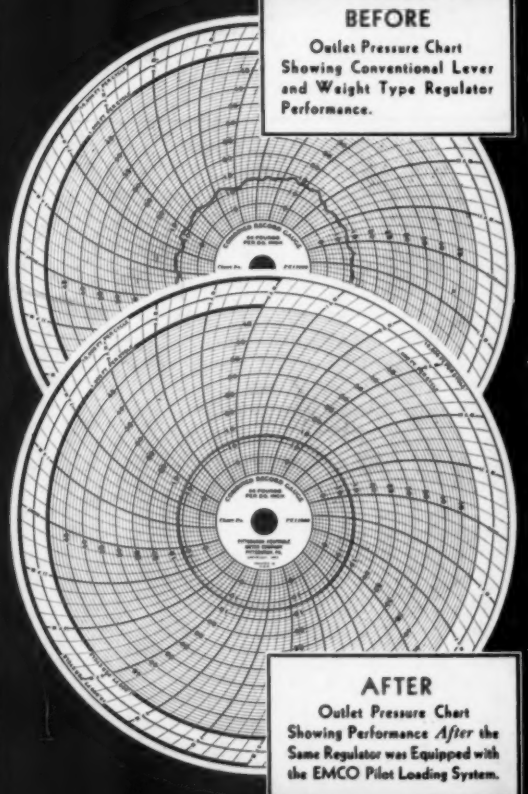

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AFTER
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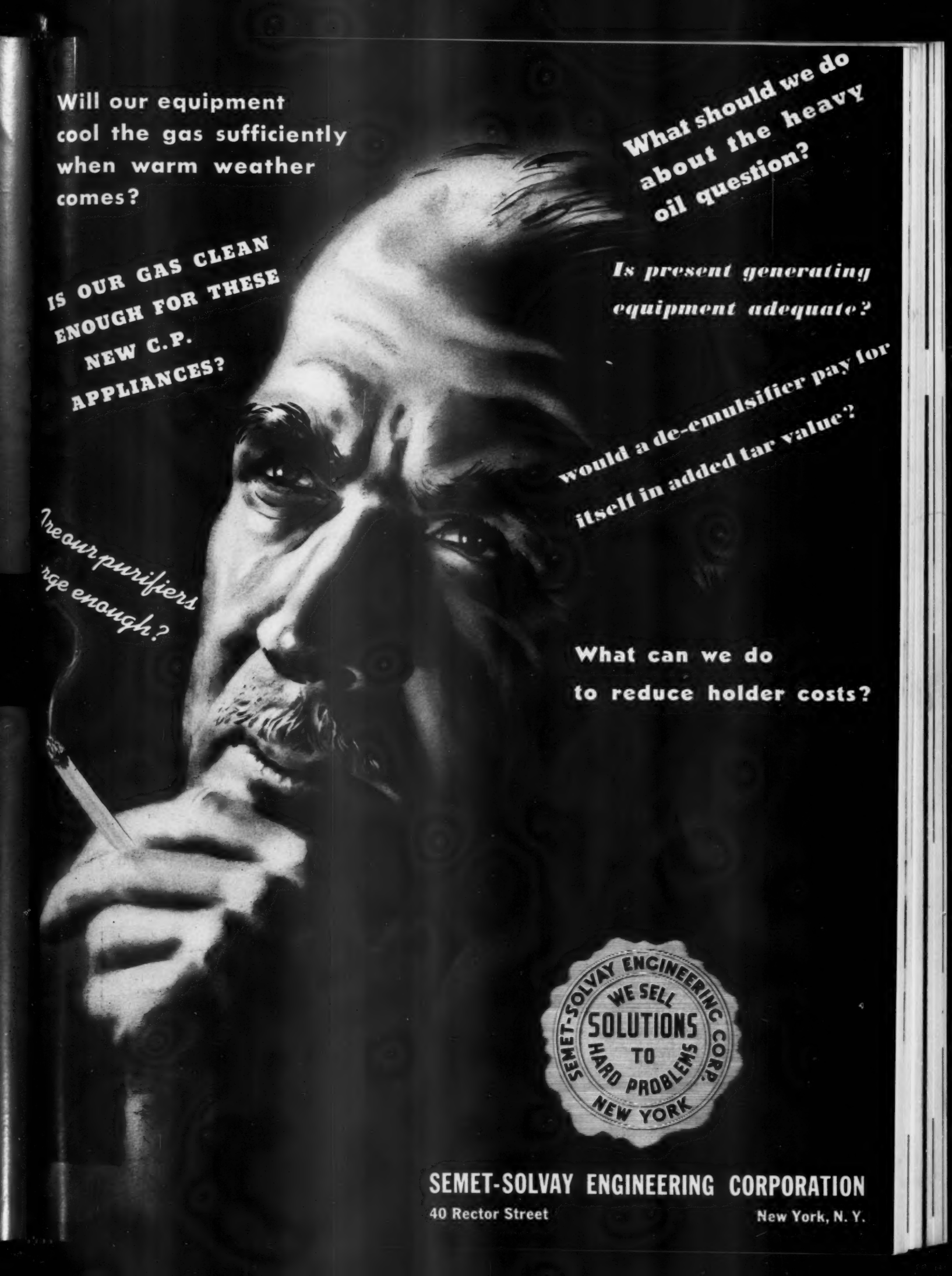
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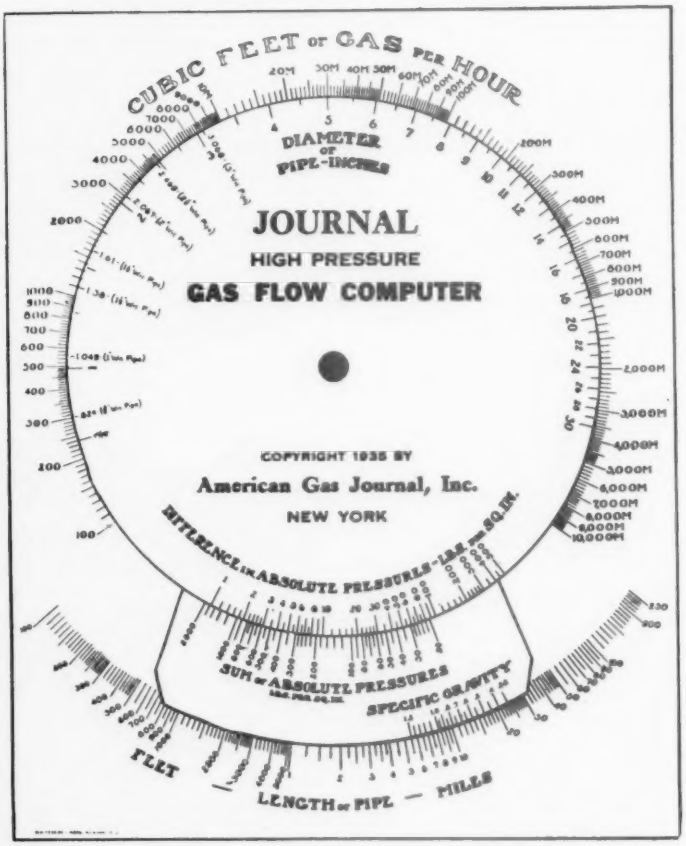

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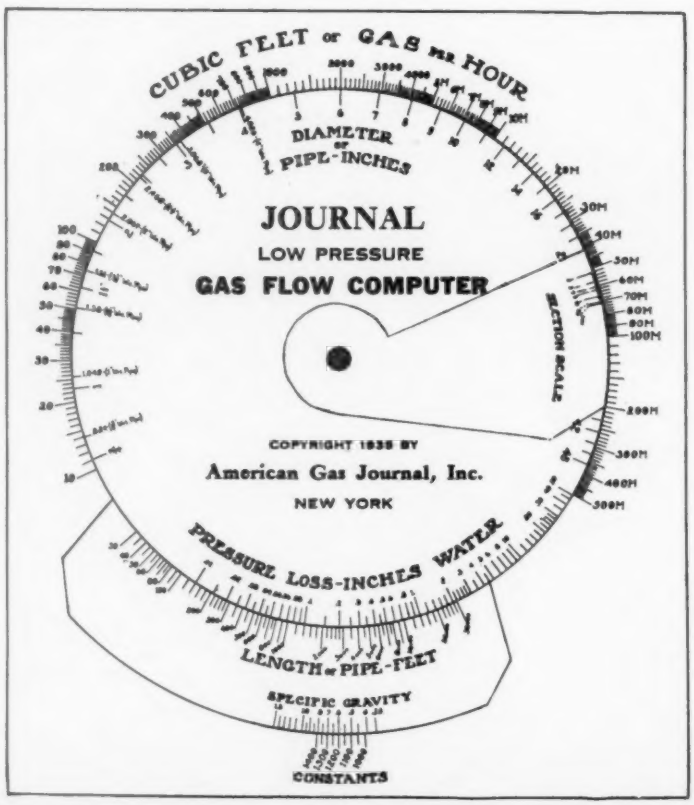

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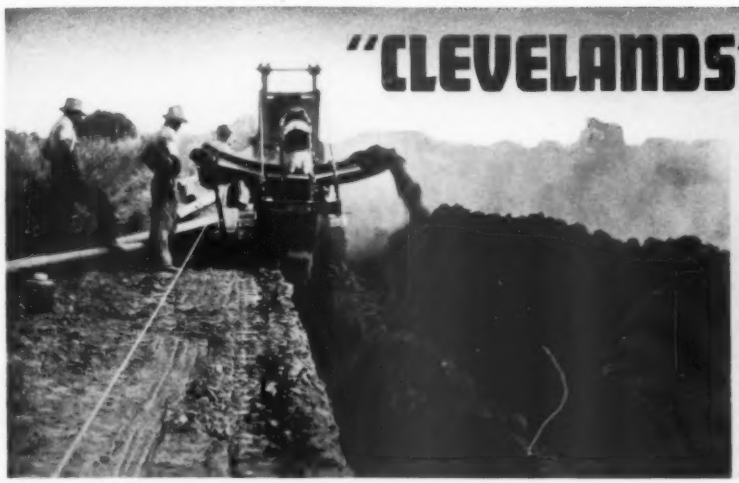

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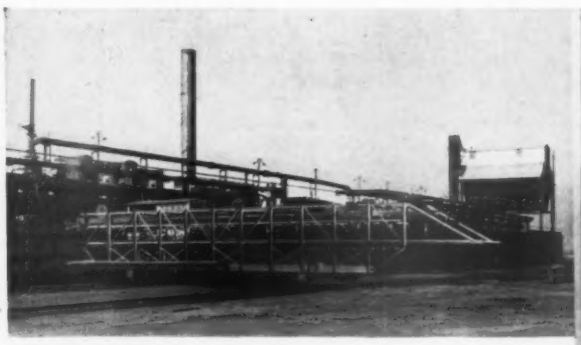

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and
★★ Appreciation of Gas Service
plus
★★★ Merchandising Profit

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S. G. KRAKE, *President and Treasurer*
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A. I. PHILLIPS, *Editorial Director*
H. T. MATTHEW, *Business Manager*
JAMES C. MUNN, *Midwest Representative*
10515 Wilbur Ave., Cleveland, Ohio
Tel. Garfield 1055
THOMAS MORGAN, *Western Representative*
168 N. Michigan Ave.
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THE PATRIARCH

of gas lamp posts

IS ENSHRINED

A few months ago, Atlanta took an old gas lamp post—one that still bears the scars of Sherman's cannonfire—and, in a very solemn ceremony, made a memorial out of it.

Carefully restored, with old-fashioned lantern and burner reconstructed and gas connection made, the old lamp now shelters an "eternal flame"—in its dual role of "Light to the Confederacy" and a surviving witness to Atlanta's heroic Civil War defense. The Atlanta Gas Light Company . . . indeed, the entire Gas Industry . . . confesses to something like a thrill of pride.

It has been a long time since Mr. William E. Helme erected his coal gas works in Atlanta, and, in 1855, first piped gas to this same lamp post, for city lighting. The gas company then dedicated itself to a service which uninterruptedly (except for two years following the burning of Atlanta) has gone steadily about its job of promoting the economical and efficient use of Gas, the "ideal fuel".

What other industry or public service can point to a better-earned memorial . . . or one more warmly cherished by the people!

WILLIAM E. HELME was a founder of Helme & McIlhenny, subsequently merged with American Meter Company, for which Company Mr. Helme was Treasurer until his death in June, 1929.

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AMERICAN
GAS JOURNAL

VOLUME 152
No. 6

Thirty-Fifth Natural Gas Convention—Seventeenth Distribution Conference

THE 35th Annual Natural Gas Convention and the 17th Annual Distribution Conference got under way at a luncheon at the Rice Hotel, Houston, Texas, on Monday, May 6th, which was headquarters for both meetings.

The first joint general session was held Tuesday morning, presiding, Elmer F. Schmidt, Chairman Natural Gas Section of A. G. A. After the Chairman's address, Walter C. Beckjord, Prest. American Gas Association talked on the subject—The Natural Gas Industry—100 Years of Progress. He traced the progress of the industry from its difficult beginnings to its present status. He praised the industry for the great progress it has made in the last few years, but cautioned against over spending. "It is awful easy to borrow money," he said, "and perhaps we have all been doing that too much. Some day we will have to pay, and when a depression comes we will find ourselves under a burden of debt."

Mr. Beckjord stated that over 90 per cent of the energy distributed in the country is in the form of natural gas, and the quantity is about seven times that of the electric industry. There are now over 83,000 miles of transmission lines and 187,000 miles of distribution lines. The investment per employee is $38,153 in the industry.

Frank Smith discussed fundamental and applied research. He stated that the work of a small number of gas executives, making an independent study of the problem is beginning to bear fruit. Development of our product and its application to new processes should be available to the entire industry. To do this we must have an adequate research program to develop the full potentialities of natural gas.

WALTER C. BECKJORD
President A.G.A.
Vice-President and General Manager
Columbia Gas & Electric Corporation

"The Company Program for the Sale of Summer Air Conditioning," was the title of a paper presented by Chas. R. Bellamy, Columbia Gas & Elec. Co., New York, and appears elsewhere in this issue of the *Journal*.

John H. Warden, General Sales Manager, Oklahoma Natural Gas Co., Tulsa, presented a paper of wide interest on the subject, "Institutional Advertising and Publicity," "Advertising," he said, "must be supplemented by a well trained sales force. Good will cannot be bought, it must be earned."

The General Session on Wednesday morning was presided over by H. D. Hancock, Vice Chairman. The first speaker was Alexander Forward, Managing Director of the American Gas Association, who outlined the progress of the Association activities. The rest of the meeting was a review of the progress programs of various committees and corporations.

Distribution Conference

The Seventeenth Annual Meeting of the Distribution Conference of the American Gas Association was held in conjunction with the Natural Gas Convention. The conference, with the Natural Gas Meeting, held joint General Sessions on Monday and Tuesday.

Distribution Conferences were held —two on Wednesday and two on Thursday, at which meetings over 20 papers and reports were presented. C. H. Waring, Chairman, presided at all of the meetings. Many of the papers were illustrated with lantern slides in the way of emphasis. From the meetings as a whole it was impressed on the delegates that the delivery of efficient gas service to the customer's meter is only the starting point of the industry's job. The various ramifications include advertising, salesmanship, public relations and civic responsibilities.

H. C. Thuerk, New York, chairman of the recently-formed committee dealing with Community Development, pointed out the importance of public relations and civic responsibilities by referring to a survey in one town which disclosed that 4 per cent

Among the convention groups. Left to right:—Alexander Forward, Managing Director A.G.A.; Chester L. May, V.P. and G.M. Community Natural Gas Co.; D. A. Hulcy, Jr.; D. A. Hulcy, President Lone Star Gas Corp.; H. D. Hancock, Gas Advisers Inc., New York; E. Holley Poe, Secretary Natural Gas Section A.G.A.; A. B. Groesbeck, V.P. and G.M. United Gas Corporation, Houston: Elmer F. Schmidt, Chairman Natural Gas Section A.G.A. and V. Pres. Lone Star Gas Corporation.

of the customers favored electric municipal ownership and 30 per cent believed the gas company should be municipally owned. The analysis, however, showed that the electric company had been much more active in civic enterprises than the gas company.

The growing interest in home service, which held two sessions, was of special interest. Walter C. Beckjord, President of the American Gas Association, in his address at the joint General Sessions, stated that home service had come to be a prime necessity and was so recognized by the industry.

At one of the sessions, there was presented, "Information, Please," adopted from the radio program sponsored by Canada Dry Ginger Ale, Mr. Beckjord was master of ceremonies and asked the questions which were answered by six experts seated on the platform. The experts who answered questions sent in from various parts of the country were: R. C. Anderson, Houston; J. H. Warden, Tulsa; J. G. Tooker, Wichita, Kans.; B. T. Franck, Milwaukee, Wisc.; Jessie McQueen, A. G. A. Home Service Counsellor, who substituted for Miss Mildred Clark, and T. J. Strickler, Kansas City, Chairman of A. G. A. National Advertising Committee.

At the second meeting of the Domestic Sales Conference a variety of subjects were discussed on the numerous phases of modern utility operations, showing the importance of servicing and promotion as distinct from mechanical operations.

Frank H. Adams, president, Association of Gas Appliance and Equipment Manufacturers, New York, said that utilities must consider what they expect of manufacturers. He said the question should not be whether the manufacturers should cut prices, but

Members of the Reception Committee. Left to right:—E. S. George, W. S. Keenan, Frank C. Smith.

can the manufacturers contribute to quality and to the service of the industry. He contended that prior to the CP range, the gas industry was selling down in price while the electric industry was selling up and making progress. CP, he stated, should be a mark of quality and not merely a badge for certain mechanical requirements.

H. Carl Wolf, Atlanta, Ga., talked on the subject "Facelifting by Advertising." Mr. Wolf told how this is possible by the use of dramatic advertising, home shows, fresh paint for trucks and structures. He said:

"Women go to beauty shops so they can be attractive and sell themselves the better. Why not the gas industry?"

The session ended with the Home Service skit entitled, "Appliance Promotion by Home Service." The setting was an up-to-date all-gas kitchen and the girls organized this into a company conference with the home service director and sales manager, on how to present the gas story on a thousand sales floors and in millions of homes. Albertine Berry, Lone Star Gas Company, was home service director; Jane Tiffany Wagner, Servel, Inc., the manufacturer's representative, and home service representatives were: Alice Livermore, United Gas Corp., Mary Frances

Another Convention Group. Left to Right:—C. C. Bahr, New York; E. P. Barclay, New York; J. R. Overs, Cleveland; Geo. W. Travis, New York and John A. Pennote, Dallas.

Reece, Oklahoma Natural Gas Company and Miss Marable, Gertrude Payne, Lone Star Gas Company; H. Vinton Potter was the sales manager.

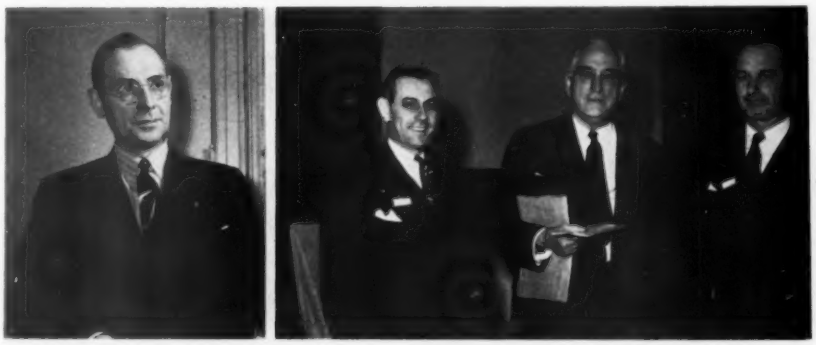
The Domestic Gas Sales Conference meetings were presided over by Davis M. DeBard, Chairman, Commercial Section, A. G. A.

There were 27 general sectional and luncheon meetings at which more than 100 papers were presented. The registration for the joint meetings approximated 1400.

Industrial Sales Conference At Houston

The industrial gas delegation to the 35th Annual Natural Gas Convention in Houston, Texas—125 strong—wasted no time in getting down to cases on Monday, May 6. The program included consideration of gas engine power, industrial marketing, interruptible load applications, boiler codes, load-building in the commercial cooking and baking field, servicing, the utility's part in industrial development, publicity and advertising, and sales procedures.

Program Committee Chairman, Frank S. Kelly, Jr., Arkansas-Louisiana Pipe Line Co., Shreveport, welcomed the group; introduced Franklin T. Rainey, Columbus, Ohio, Chairman of the A.G.A., Industrial Gas Section, and presiding chairman of the session.



At the Industrial Sales Conference. Left to right:—T. J. Gallagher, Peoples Gas Light & Coke Co., Chicago; F. T. Rainey, Chairman Industrial Section, Columbus, O.; W. L. Childs, Vice President and General Mgr. Reed Roller Bit Co., Houston; Frank S. Kelly, Jr., of Arkansas-Louisiana Pipe Line Co., chairman of the Program Committee.

Age of Consumership Imminent

Guest speaker of the day was W. L. Childs, Vice-President and General Manager, Reed Roller Bit Company, Houston, whose analysis of "Basic Trends in Industrial Marketing" was inspired by long experience both with the subject and with industrial gas applications.

Labeling one major technique of industrial gas selling as "application engineering," Mr. Childs spoke of the importance of developing new uses for our product, and paraphrased for industrial gas men an old adage—"we must make 2 flames of gas glow where one glowed before." Further, he urged, we must pay more attention to the public understanding of gas-in-industry. "The truth of the matter is that we have been so busy attending to our knitting, doing and producing the things men live by, that we have not taken time to set our activities out in the proper light before the public."

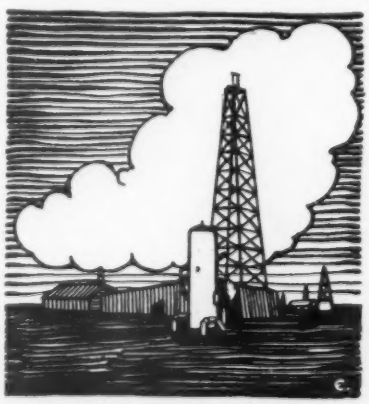
Commercial Cooking Loads

Following a "Report on the Present Status of the Code for Installation of Burners in Large Power Boilers," T. J. Gallagher, The Peoples Gas Light and Coke Co., Chicago, suggested a 4-point program to retain and develop commercial gas sales.

(1) Know your appliances and stress their special benefits to each particular prospect, (2) Study your competition to know what he has to offer and how it sells, (3) Offer specialized service so that the user feels that he is buying more than just gas and gas equipment, and (4) Advertise, even to extent of fraternizing with customer groups, so that as much of your saleswork as possible is done in advance.

Servicing Industrial Customers

The matter of "Servicing Industrial and Commercial Gas Equipment" was handled by Carl A. Renz, Southern California Gas Co., Los Angeles, largest single distributor of natural gas for industrial uses in the world.



Among many interesting thoughts concerning closer control and more logical conduct of company service was that "the frequency of *routine* service calls is based, not upon guesswork, but upon the following factors: (1) annual company revenue, (2) value of account to sales department, i.e., expansion of business or competitive conditions in certain quarters, (3) extent to which customer is contacted by sales engineer, (4) condition and load factor of plant, and (5) number and skill of customer's operators."

Ten Basic Points in Selling Industrial Gas

The ten "Points in Selling Industrial Gas" proposed by L. S. Reagan, Webster Engineering Co., Tulsa, included: (1) management must be sold on the value of industrial load, (2) industrial department heads must be able to talk to the business executive, (3) engineers must know other fuels than gas, (4) industrial salesmen must be paid a wage sufficient to get and hold the best, (5) your fuel must not be "oversold," but sold only insofar as facts and future developments can bear out your claims, (6) only the best equipment should be recommended, (7) proposals must be carefully checked so that they will not later embarrass you, (8) proposals should be neat, concise, well illustrated and bound, (9) do not neglect the intangibles of cleanliness, increased production, improvement of product, etc., and try to arrive at definite figures for them, and (10) be cautious in emphasizing labor-saving features—they may be a boomerang.

The Company Program For The Sale Of Summer Air Conditioning

by
Charles R. Bellamy
New York, N. Y.
Chief Engineer, Gas Department
Columbia Gas & Electric Corp.

IT MIGHT be well at this time to ask ourselves why there is so much talk among gas men about summer air conditioning. Why are there so many questions on this subject when the business to date has been so small? Is it because of the apparent slow progress or because of renewed interest in the subject? Undoubtedly some of the questions are prompted by impatience with the results so far obtained, but I believe that the real reason back of most of these discussions and questions is that today practically all gas men are not only interested in air conditioning but believe in it, whereas only a few years ago only a few pioneers gave it much thought. During the past year or two practically every section of the A.G.A. has become interested in air conditioning and has had at least one paper on this subject presented at one of its annual meetings. Possibly the Accounting Section has had no such paper as yet, but before long it will probably fall in line.

We all know that vision and knowledge are required to plan intelligently for any business, and this is especially true of air conditioning which presents a most interesting but very complicated problem. Enthusiasm is needed, but it should be enthusiasm based upon confidence in our own product, gas, and tempered with an understanding of the fundamentals of air conditioning. A superficial knowledge of this subject is apt to cause more harm than good, and we should be on our guard against its influence upon our actions.

It takes both time and study to comprehend the present status and future possibilities of gas fired summer air conditioning equipment. Usually gas men who really dig into this subject pass through the same cycle of reactions. First, with a little knowledge, one is fascinated with the subject and is impatient with results because of his enthusiasm. Then, as one becomes better acquainted with all the various ramifications of this involved subject, his enthusiasm wanes somewhat and he may even become pessimistic about the whole business. Finally, however, if he continues his studies his vision broadens and his enthusiasm returns bringing with it this time not only an appreciation of the possibilities of summer air conditioning but also an understanding of some of the big and interesting problems that have to be solved before it can really "go to town." The gas man who has gone through this cycle of reactions is more sympathetic with the manufacturer of equipment and better able to cope with his own part of the problem than one who has not. He knows now that the problem is one which calls for concerted action, organized planning and execution by the most competent manpower within our industry.

May I briefly review some of the encouraging developments of the past few years? It was not so very long ago that there was little or no agreement among air conditioning engineers within our industry as to what we needed or what we should do. Whenever two such men got together there were at least three opinions advanced on most every phase of the business. Now, when two engineers discuss this subject there are seldom more than two opinions; some times —believe it or not—only one. This is progress!

Another development of real importance which has already been mentioned is the increasing interest of all gas men in summer air conditioning. Up to the present time this interest has been of intangible value, but today it is beginning to stimulate action and cooperation. More and more men from the technical, sales, and executive departments of our industry are becoming deeply interested in this subject, and this interest is gradually being built up into a creative force.

In addition, there have been two developments of really tangible value. During the past two years the builders of gas fired dehumidifying equipment have simplified the design of their apparatus while at the same time making substantial reductions in its sales price. As a result of these technical and commercial improvements the markets for such equipment have been broadened. Simultaneously with these improvements has come development of several gas fired absorption refrigeration systems for summer air conditioning. We now have three such refrigeration systems in a semi-commercial stage of development, and in addition there are two or three patented processes which, although still in the undeveloped stage, appear to offer much promise. Certainly we can point with pride to the progress that has been made in the technical and manufacturing side of this business.

Two Fundamental Systems

Before leaving this phase of the problem I would like to review in non-technical language some of the fundamental principles of summer air conditioning. Practically speaking, there are two fundamental systems: first dehumidification with supplementary water cooling; second, refrigeration with or without separate dehumidification equipment. Practically speaking, there are two main methods of refrigeration: 1. Compression; 2. Absorption. For the purpose of this paper we may call the compression system the electrical method and the absorption system the gas method, although there are numerous exceptions to such a classification. From the standpoint of actual air conditioning results it makes little difference which refrigeration system is used, and the customer as a rule is not interested in the energy that motivates the system.

Much of the complaint against commercial air conditioning is undoubtedly due to the unsatisfactory experience that the public has had in railroad trains and theaters. Some of the railroad installations were really discomfort jobs. The theater installations, while not as bad as those

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A paper presented at meeting of the American Gas Association Natural Gas Section, Annual Convention, Houston, Texas, May 6-10, 1940.

of our railroads, have seldom had the capacity and flexibility that are necessary to provide true air conditioning under all load conditions. Hence, many installations which were intended to provide comfort air conditioning could do this only under certain peak load conditions and at other times they became discomfort jobs. Naturally, it is these latter occasions that the theater patrons remember.

Humidity Control

For many years the manufacturers of gas equipment have emphasized the importance of humidity control, and I believe our entire industry should support them in this stand. This does not mean that we should be biased or fanatics on the subject but rather that we should stand united against the lowering of comfort standards which, while they cheapen the installation cost of air conditioning, also cheapen the results attained. Our position, I think, should be that comfort air conditioning stands for the maintenance of effective temperatures as recommended by the American Society of Heating and Ventilating Engineers not just part of the time but all of the time, with flexibility to vary the actual temperature and humidity of the conditioned air over the full range permitted by the accepted effective temperature chart. While present day knowledge of the effects of entrance and exit shocks may not be very comprehensive, we do know that the American Medical Association Journal has suggested that higher temperatures should be carried in summer air conditioning to prevent shock in hot weather and that certain medical groups have recommended 10°F. as the maximum temperature differential. Personally, I believe that comfort air conditioning should be able to provide dry bulb temperatures of from 78° to 85°F. with relative humidities of from 55% to near 30%.

Although the buying public may not express its desires in technical language, there is undoubtedly a growing demand for something better in commercial air conditioning. Typical of this trend is the air conditioning installation of the new Crosby restaurant in Cleveland, O. Having had about six years' experience with conventional air conditioning, the Crosbys wanted something better for their new restaurant. Their specifications called for dry air, not too cold, also a system free of drafts, since most people object to them. They realized that such refinements cost money, but were willing to spend what was necessary to get the results desired. After a careful investigation, a combination system was installed in which the dehumidification is accomplished by a Kathabar unit under its own control and the cooling by means of refrigeration under entirely separate control. This system was designed for the following restaurant inside condition: 82° dry bulb, 66.8° wet bulb, 45% relative humidity, 75° effective temperature. This design condition was selected as a result of experience in other restaurants, which indicated that overcooling is distasteful to a majority of the people and that greater all-round satisfaction would be obtained by holding the temperature of the conditioned air near the top of the comfort zone. Results to date have been extremely satisfactory and confirm the soundness of the design condition.

It is significant in this connection that industrial installations are on the whole better designed than commercial installations. If the same precautions were used to provide proper temperature and humidity conditions for human beings as is done for products of manufacture I feel sure that the general public by this time would be far more enthusiastic about air conditioning. It is also significant from our standpoint that wherever uniform humidity conditions have to be maintained with precision the air conditioning system generally includes separate dehumidification equipment.

With these facts in mind let us examine the possibilities of present gas equipment without bias.

I. Dehumidifiers

Application: (a) complete air conditioning where cold water is available. Depending upon water temperature and cost, re-evaporation cooling may or may not be required. The field of application is widened by proper re-evaporation cooling.

(b) For humidity control in split systems. Where great precision is required in the control of air moisture such as in many industrial installations separate dehumidifying equipment is often essential. In comfort jobs where the results of air conditioning are more intangible than is the case with industrial jobs the extra cost of a split system is more difficult to justify. This type of installation, however, has many advantages and undoubtedly should be considered the standard of performance. It is gaining in favor and should continue to do so as performance standards become more exacting.

Thus we find that the gas fired dehumidification system can provide complete air conditioning under certain conditions and has definite possibilities of application under all conditions. We think of dehumidifiers as gas equipment, and gas is certainly ideal for this purpose, but we must remember that other fuels can be used, and there is bound to be the same competition here as in heating.

II. Absorption refrigeration systems

These systems have been designed to compete with the conventional motor-driven unit. Properly designed, with ample capacity, and provided with re-heating facilities, they can furnish complete air conditioning, or, like the electric unit, they can be combined with a dehumidifier to form a split system of highest merit.

It is apparent, I think, that dehumidifiers and absorption refrigeration systems are more supplemental than competitive. It follows, therefore, that the dehumidifier has a place in air conditioning regardless of how the air is cooled, whereas the value of the absorption refrigeration system depends largely upon how it compares in first cost, general operating cost, dependability and performance results with the conventional electric system. To succeed, the absorption refrigeration system must either equal or better the compression system of refrigeration in all-round performance results. The big problem here appears to be which system of refrigeration, absorption or compression, is fundamentally the sounder, that is, which lends itself to the most efficient and economical development and which has the greater flexibility. It is impossible at this time to say which type of refrigeration will become most popular. In fact, the manufacturers of electrical equipment appear to be concerned about this very point. I understand that one of the largest manufacturers of such equipment has assigned an engineer to study the possibilities of absorption refrigeration systems and if the report of this engineer is favorable the company proposes to develop, perfect and market an absorption unit. Another large manufacturer of electrical equipment has a similar study under consideration.

The possibilities of developing and improving these two types of re-

frigeration systems for air conditioning work appear to be approximately as follows:

With the compression system the theoretical efficiency may be represented by a coefficient of performance of 7.7, while for the absorption system the corresponding coefficient is 1.2. Now, in summer air conditioning work actual performance coefficients are on the order of 3.4 for the compression system and .5 for the absorption. Hence, the true efficiency of the compression system is 3.4/7.7, or 44%, while for the absorption systems it is .5/1.2, or 42%. Theoretically at least, the two systems appear to offer about the same opportunities for further improvement. Likewise, insofar as the possibilities of reducing manufacturing costs are concerned neither system by itself appears to have any decided advantage. It should be possible, however, to combine the absorption cooling unit very intimately with the heating system to provide a year around air conditioning, and this combination may give the absorption unit a big advantage over the compression system.

It is also interesting to compare the present operating characteristics of these two refrigeration systems. From actual coefficient of performance ratios, 3.4/.5, it is apparent that the absorption unit requires about seven times as much energy as the compression unit. In other words, to be competitive the energy for the absorption unit should cost not more than one-seventh that for the compression unit, assuming all other conditions are equal, which may or may not be the case. On this basis the break-even value of gas for various prices of electricity is shown in the following table:

Average price of electricity per KWH.	*Equivalent value of gas per therm*	*Equivalent value of manufactured gas per MCF (550 Btu.)*	*Equivalent value of natural gas per MCF (1100 Btu.)*
1.5c	6.3c	34.6c	$0.69
1.75	7.35	40.4	0.80
2.00	8.4	46.2	0.92
2.25	9.45	52.0	1.04
2.50	10.5	57.8	1.15

In natural gas territory it is apparent that the absorption system may have a decided advantage over the compression system from the standpoint of operating economy. Even if electricity should be 10 times as effective as gas per heat unit, natural gas would still be competitive under usual conditions.

In the manufactured gas area the present competitive position of the absorption system is of course dependent upon local rates for gas and electricity. Where electric rates are relatively high and gas rates relatively low the absorption system should be received with favor, but in most manufactured gas territories this new refrigeration system will probably have to offer some incentive in the way of first cost or exceptionally high performance standard if it is to make headway.

Gas vs. Electricity

In the struggle that now looms up between compression and absorption refrigeration systems there are many factors involved, some of which are difficult to evaluate, others difficult to anticipate. One of the really important factors is that of gas and electric rates. The advantage one way or the other as between these systems is now very slight and depends very largely upon the rates in force for gas and electricity. A change in these rates would have a decided effect upon the competitive positions of the two systems.

The fact that the refrigerating load of summer air conditioning presents a more or less serious problem to the electric industry while it represents the ideal load to the gas industry is something to ponder over. A great deal has been said about the undesirability of the air conditioning load to the electric utility, and while there is much truth in all this, I think it will be some time before the electric industry enthusiastically promotes gas air conditioning. There is, however, reason to believe that the electric utilities will not object as strenuously to the development of the absorption refrigeration system, which is really a chemical system, as they would to the promotion of a competitive prime mover. The combination companies, as well as certain progressive independent electric companies, may soon be glad to have this new equipment grow in favor. To the electric industry the growth of air conditioning is bound to bring new business regardless of whether the basic units are electric or gas, since the power of fans, pumps and other auxiliaries will be electric, and this is the steady, desirable load. To the gas industry, on the other hand, the growth of air conditioning is of interest only as gas is employed for the dehumidification and refrigeration effects. Hence, if the so-called electric units should prevail, only one of our utilities would benefit, and that to a questionable degree, whereas if the gas fired systems come out on top both the gas and electric utilities will benefit almost equally. The determining factor, of course, will not be how these systems affect the utility business but rather how they benefit the public.

No Universal Program

I don't believe that there is any person or group of persons who can at the present time draw up a complete or even comprehensive program on summer air conditioning that will be suitable for all gas companies. Certainly I can't do so. There are so many all-important factors involved, such as gas rates, water rates, electric rates, climate, size of gas company, etc., that undoubtedly several different programs will have to be developed to meet the different conditions under which companies operate. This much, however, I think we can all agree upon, namely, that during this pioneering period the leadership in air conditioning work should be taken by the larger natural gas companies, whether combination companies or not, which operate in sections of our country where the actual need for relief from summer heat and humidity is greatest.

An Engineering Job

It is well for us to recognize that air conditioning in itself is not really new but is as old as, or older than, the automobile or radio. The question of whether or not it is as important a development as the radio or the automobile is one to conjure with, but we do know that its progress has not been as sensational, and the reason for this is not hard to find. Summer air conditioning is not a product like the automobile or radio or refrigerator, which can be completely assembled at a factory and sold over the counter directly to the customer as a finished article with guaranteed performance. Instead, it is a cooling and ventilating system that has to be designed, engineered and fitted to the building or space which it is to serve. The cooling or refrigerating unit, likewise the dehumidifying unit, may be standardized products, but as such they represent only from 30 to 40% of the total cost of the complete installation and the success and economy of air conditioning are de-

pendent upon the correlation of numerous factors as well as upon the individual efficiency of important units in the system. Because of this very fact air conditioning systems are not sold directly by the manufacturers or the utilities but by independent local engineering contracting organizations. It is estimated that there are now over 1,500 such concerns scattered throughout our country and that these are the organizations which not only aggressively sell air conditioning but which install and service the installations. Today this large dealer organization is devoting its energies almost exclusively to the promotion of electrical equipment. If gas fired equipment is to succeed commercially it is obvious that the manufacturers of such equipment and the gas utilities must cooperate with the dealer organizations that have been built up in our country to sell and install air conditioning and to which the public now looks for advice on this subject.

Although summer air conditioning is not new, gas fired equipment is even now in the infant stage. Present indications are that in 1941 there will be one or more absorption refrigeration units in commercial production and for the first time complete gas equipment will be available for air conditioning. From a commercial and marketing standpoint we have had up to this date only gas fired dehumidifying equipment to offer. Regardless of whether or not dehumidifier equipment should be included in practically all air conditioning installations, we know that it does not itself constitute complete air conditioning. Prior to this time, therefore, there was no urgent need for an aggressive policy by the gas utility. Now, however, with complete air conditioning to offer, there should be no delay in adopting a policy that would call for aggressive and concerted action by our industry.

Plan of Action

In March of this year the Air Conditioning Committee presented a plan of action to the American Gas Association Committee on Association Activities which proposed that from fifteen to twenty of the larger gas companies employ capable air conditioning engineers to study this problem from both the marketing and the engineering standpoints. Under this plan these air conditioning engineers are to report directly to the top operating executives rather than to any department head. It would be the duty of these men to spend sufficient time at each of the factories where gas equipment is manufactured to thoroughly understand the construction and operation of each piece of equipment. Upon completion of this preliminary step they would be called upon to start a survey of the possibilities of gas air conditioning in their particular territories. This survey would include not only a search for prospects but also a careful study of ways and means for securing close cooperation on the part of manufacturers and gas companies with the stronger of the local engineering contracting companies. It would be the duty of these gas company engineers to see that gas equipment was considered in all those installations where it merited consideration and in only such places. This is a very important point, for as we start our campaign for gas equipment we want to make certain that our first jobs are installed where conditions are most favorable. The best booster in the world is the satisfied customer, and to obtain such a customer in summer air conditioning it is essential that the installation be soundly engineered.

A natural question to ask at this time is: Where are we to get the experienced and competent sales engineers for air conditioning? The answer, I believe, is: From the electric utilities and the manufacturers of equipment. Frankly, there is no better training for the work we have in mind than that which many engineers have received in the established air conditioning industry during the past five or ten years. The engineer who thoroughly understands the conventional type of air conditioning knows both its strength and its weaknesses and he should be capable, therefore, of making an unbiased and sound comparison of the merits of gas fired equipment with those of the competing system. Some of our combination companies have such air conditioning experts in their electric organizations, and in these cases it will only be necessary to transfer such an engineer from the electric to the gas department.

The plan as proposed is not elaborate. It is not complete, for it is intended merely as the starting point upon which to build. It recognizes the fact that one or two companies may already be a step or two ahead, but it seeks to emphasize the importance of having from fifteen to twenty strong companies participating in this campaign for the air conditioning business. It calls for a united front by the bigger companies and has for its objective the drive and power of team play. While the proposed plan itself is quite elementary, it should be backed up by a broad-gauge policy on the part of each participating company, and there should be no thought of immediate profit.

Today our industry is being challenged to action by the developments that are taking place in the summer air conditioning business. We are being challenged to undertake three big, new jobs, jobs that are altogether too big for one or two companies to cope with effectively and which call for the strength of a united, determined industry. These three jobs are the main objectives of the plans which have been proposed by the Joint Air Conditioning Committee. They are:

1. To gather information and obtain experience along a broad front so that our starting plan will evolve under an intelligent guidance into the comprehensive and aggressive course of action that sooner or later will be required.
2. To encourage and support the manufacturers of gas fired summer air conditioning equipment. We say we believe in research; do we? If we do, we will give some evidence of that faith.
3. To initiate a movement that will arouse the interest, command the respect and secure the wholehearted cooperation of the engineering dealer organizations that constitute an essential link in the summer air conditioning business.

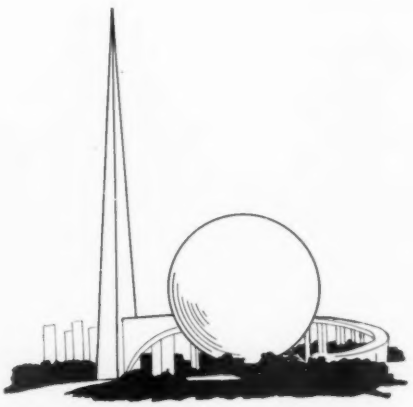
When we have done these three jobs well we will really be in the air conditioning business.

Air Conditioning Mfrs. Assn.

Stewart E. Lauer, president of the York Ice Machinery Corporation, was elected president of the Air Conditioning Manufacturers' Association May 11 during the annual meeting at Hot Springs, Virginia. The Association lists as members the seven leading concerns in the air conditioning industry.

Other officers elected were: Vice president, Stuart M. Crocker, manager of the air conditioning department, General Electric Company; and treasurer, P. A. McKittrick, general manager of the Parks-Cramer Company.

Gas at New York World's Fair 1940



THIS YEAR at the New York World's Fair again sees gas appliances in the forefront. Much of it is a continuation of installations as described in this publication—April, June, July and October, 1939—though additional features are to be seen, among them a more impressive use of great gas flames in the nightly spectacular display at the Lagoon of Nations.

There are thirty gas burners used in this fountain display. Twenty-seven of them, distributed throughout the central platform are 5⅜ in. in diameter, having 21 ports each. Three giant burners operate in the center of each of the three central fountains, throwing a 20-foot flame through the ascending water, which attains a height of 190 feet.

This is a modification of the 1939 display, with an increased use of gas to strengthen the nightly spectacle which is one of the outstanding sights of the Fair.

Constantly changing colors sweep across the vast undulating curtains of water while fireworks and synchronized music blend in orderly chaos as searchlights sweep the sky above.

More than 2500 gas appliances are installed at the Fair.

Gas Industries' Exhibit

The exhibit group of the gas industries dramatizes in a highly picturesque manner the role that the gas industry is playing in American life. It is staged on a more spectacular scale than that of a year ago, is called "Gas Wonderland."

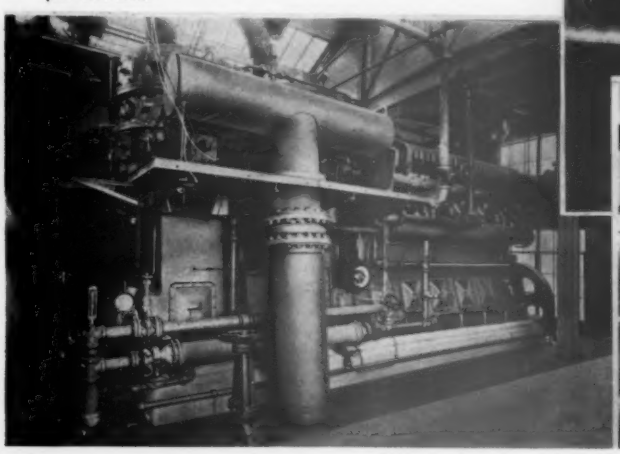
The entire group of exhibits and displays represents the collaborative efforts of all departments of the industry, both the utilities and the manufacturers of gas appliances and equipment, to impress upon visitors the importance of gas as a modern fuel.

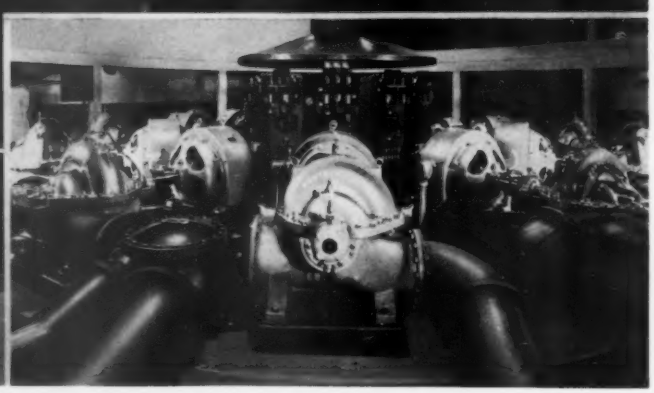
It consists of seven main sections, namely the "Magic Caves of Ice," the "Mini" rooms, the "Mystery Gardens," "Tiny Town," the "Flame Restaurant," the "Court of Flame," and the Court of Flame Club. The entire exhibit occupies nearly two acres of land. There are two build-

Right:—The spectacular fountains in the Lagoon of Nations where thirty gas burners shoot their flames through the columns of water in the nightly display, accompanied by fireworks, searchlights and music, with ever-changing colors.

Below:—Pumping Station at Astoria plant of Consolidated Edison Co., shows extension of equipment to supply gas to Flushing and World's Fair. These are Worthington Uniblock Engine Compressors, 6 cylinders 15" x 17½" Verticals.

Right, below:—In a glass enclosed rotunda near the lagoon, in full view of the visitor, are eleven direct connected Worthington centrifugal pumps, supplying pressure for the spectacular fountains in the Lagoon of Nations. There are nine 16", one 8" and one 6" arranged radially around a circular panel board. When operating at maximum capacity, they have a total output of 280 tons of water per minute.





1.—At the New York World's Fair on the opening day, May 11th, a crowd is seen at the Court of Flame waiting for a parade to pass. The poster signs refer to the wonders to be seen in the exhibit.

2.—The "Mystery Garden" of the gas industries' exhibit group as it appeared on the opening day. Some of the people are being entertained by the dwarf "Gaso," (in the upper left corner). In the background, people are passing into "Tiny Town."

3.—Peering over the background is a section of the crowd that visited "Tiny Town," a realistic representation of a typical American suburb. Twenty-one of the buildings "talk" as they pop open, dramatizing through amusing and effective skits, the various uses of gas appliances in industry, in commerce and in the modern home.

4.—J. J. Quinn, general manager of the Boston Consolidated Gas Company, (left) and William Reynolds, advertising manager of Servel, Inc., were guests at a reception given on the opening day in the "Court of Flame" Club of "Gas Wonderland."

ings or pavilions this year instead of the one long circuitous building which housed last year's displays, and the landscaping area is greater than a year ago.

The "Disappearing Dwarf"

The visitor begins acquaintance with the first instance of the showman's magic which characterizes the whole exhibit, as he is greeted by the "Disappearing Dwarf," who does a few tricks and then disappears. In a moment, there he is again, standing in front of a fountain doing another trick, namely, lighting a gas flame through a column of water. Then the smiling elf disappears long enough to greet new visitors entering the pavilion.

"Magic Caves of Ice"

The "Magic Caves of Ice," an exhibit sponsored by Servel, Inc., employs dim lights, cool breezes, shadows on rocks, and icicle-like formations to simulate the conditions that prevailed in the caves of the "Ice Age" millions of years ago. Openings in the sides of the cave reveal frozen lakes, frozen waterfalls, the cold starry sky of the Polar regions and the Aurora Borealis.

A series of ten dioramas set in the cavern walls tell the story of mankind's efforts to preserve his food or make it more acceptable to the taste through refrigeration. These dioramas show how methods of refrigeration have improved from age to age.

Visitors will also see the actual refrigerator which was rushed to the home of the Dionne quintuplets at the time of their birth and which since has been replaced with a later model.

"Mini" Kitchen and Basement

Through a row of thirty peep-holes the visitor looks into a model full-sized kitchen equipped with all the latest gas appliances as well as other furnishings that do away with household drudgery. As the kitchen is seen through diminishing glasses recessed within the peep-holes, everything looks tiny. It looks like the kitchen in a doll's house, or one in the land of the Lilliputians. Visitors are invited to go into the actual kitchen after seeing it in miniature.

Adjoining the "mini" kitchen is the "mini" basement which also is to be seen through peep-holes. This is a counterpart of the all-utility and play-room which is a feature of the modern home. In this room is the house-heating and air-conditioning apparatus as well as the equipment for leisure time activities.

Mystery Garden

Adjacent to the entrance pavilion is a large landscaped area called the "Mystery Garden," which may be viewed from a spacious terrace. In addition to the usual landscaped features such as lawns, shade trees, shrubs and flower-beds, visitors are treated to a number of surprises and oddities for their amusement while passing through or resting in the gardens. Among these novelties are such things as a "talking flagstone" which says "Don't step on me" when the visitor steps on it. Trees "sing." A bench under an umbrella tree also begins to sing when sat upon. A cactus plant has flowers of flame, and statues suddenly vanish. Talking gnomes peep out of the hedges to the delight and bewilderment of the visitor.

Natural Gas Map

A map of the United States of terrazzo marble and laid horizontally in the "Mystery Garden" shows the distribution of natural gas in the United States. The various states are indicated by the different colors of the marble. Also shown here is a model of a gas well in Texas. Nearby is an operating model of a gas well derrick.

Fountains of Fire and Water

Also located in the "Mystery Garden" is a striking fountain combining gas flames of ever-changing color with tumbling water.

In addition, there are six "aqualon" fountains gracing the Avenue of Patriots entranceway. Sheets of

multi-colored flames, constantly changing in shape, pour from the surface of these "aqualons" (modernistic, all-glass tanks comprising the fountain unit). Colored lights play on the fountains and bubbles shoot upward continually through the water.

"Tiny Town"

Facing the "Mystery Garden" is "Tiny Town," a complete suburb in miniature, with streets, trees, a church, motion-picture theatre, school, swimming pool, newspaper plant, hospital, candy factory, gas company office, shops, stores, and houses of various types and styles including the mansions of the well-to-do and the cottages of the wage earners and salaried people. A small farm is seen on the outskirts of the village.

There are twenty-one buildings in "Tiny Town" which "talk" to visitors as their sides come down or roofs pop open to reveal interiors that disclose all the various utilizations of gas in the home, in commerce and industry. The buildings tell the visitors of the advantages of gas as a modern fuel.

"Court of Flame"

The "Court of Flame" which gave the entire exhibit its name last year is still a striking feature of this year's exhibit group. The four conspicuous 90-foot red colored shafts or pylons appear as beacons at night

as they are swathed in flame from gas jets ingeniously arranged to give an upward spiral effect to the flame. The gas flame torch blazing from the top of the giant mirrored cube continues to be a feature of the exhibit.

Auditorium

An auditorium with a seating capacity of several hundred situated in the building directly adjacent to the "Court of Flame" has been made available as a public service throughout the duration of the Fair to civic, welfare and other organizations who may desire its use for meetings. This auditorium will also be used by the exhibitors for meetings devoted to discussions pertaining to the gas industry.

"Court of Flame" Club

The beautifully-appointed "Court of Flame" Club that was so popular last year with the visiting members of the gas industry from all parts of the country will be maintained again this year for the purpose of entertaining its members.

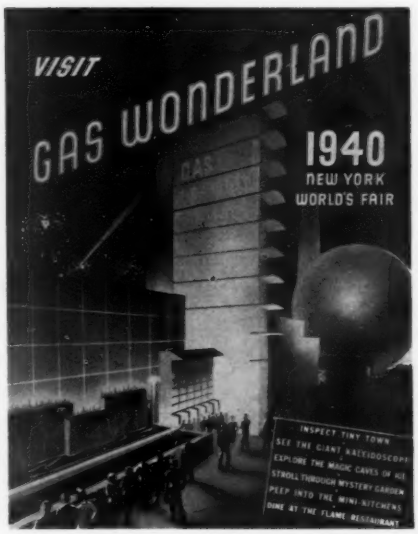
Miss Mary Dillon, President of the Brooklyn Borough Gas Company is being entertained by Hugh H. Cuthrell, V. P. of The Brooklyn Union Gas Company and President of Gas Exhibits, Inc., at the reception given at the Court of Flame Club.

Colorful Poster on "Gas Wonderland"

A vivid poster that dramatically spotlights "Gas Wonderland," the gas industries' exhibit group at the 1940 New York World's Fair, has been prepared by Gas Exhibits, Inc., for distribution to all utilities throughout the country, and to all manufacturers of gas appliances and equipment who have contributed to the Fair exhibit.

Silhouetted against the Fair searchlights, the poster shows the entrance pavilion to "Gas Wonderland."

The posters are 16 x 20 inches, on heavy, durable stock. They are being produced in four process colors. Particular care has been taken to choose a size suitable for display use in show rooms, sales



rooms, offices and show windows, and also on delivery trucks.

Three copies of the poster are sent out to the utilities, gas appliance and equipment manufacturers. Additional copies in moderate quantities may be had free of cost by writing to Gas Exhibits, Inc., 4 Irving Place, New York City.

Executive Conference A.G.A. Endorses Gas Air Conditioning Promotional Activity

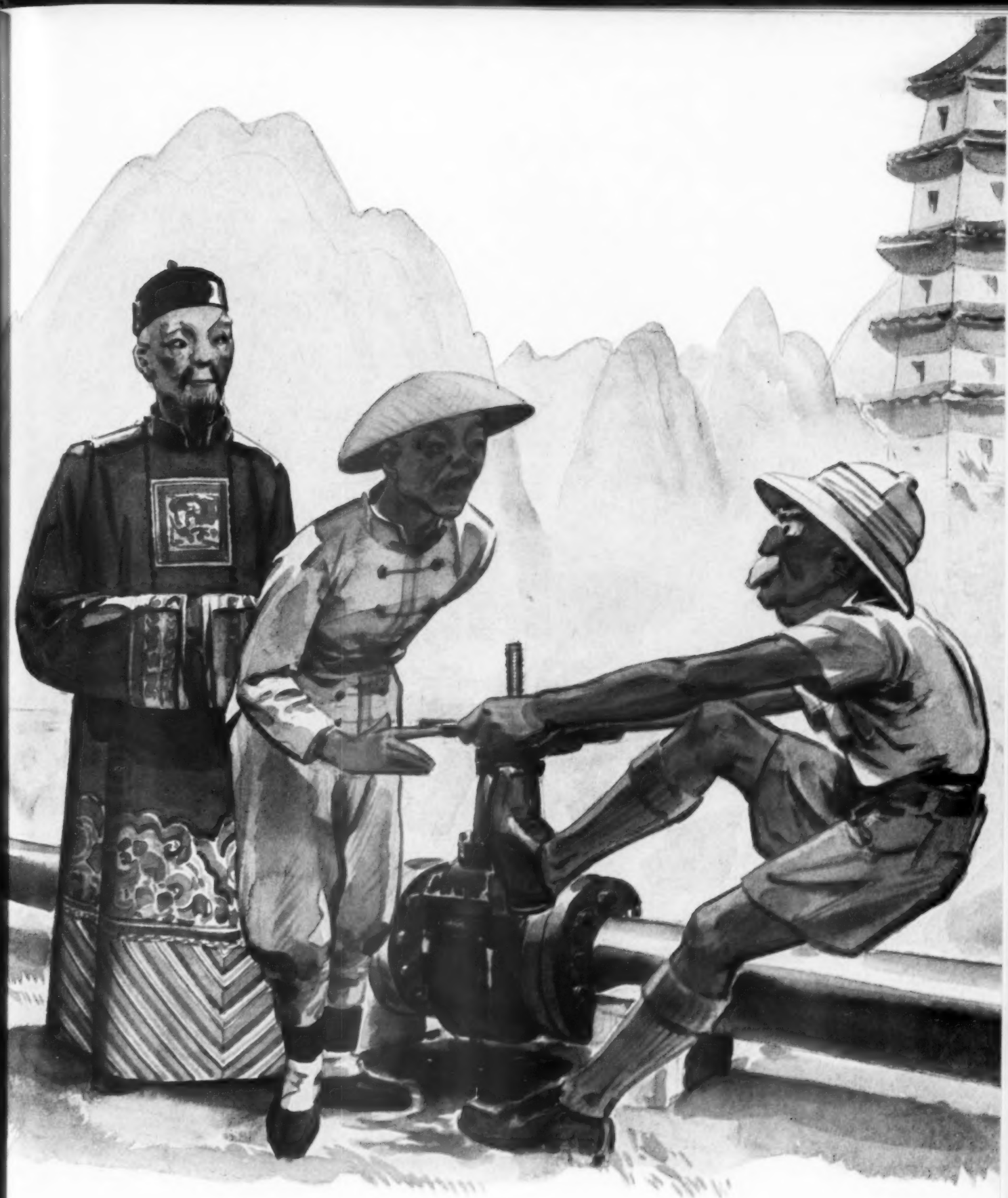
Realizing the possibilities of the gas industry in the air conditioning field, the Executive Conference of the American Gas Association meeting in Chicago, May 24, passed the following resolution:

Resolved, that the Executive Conference goes on record to urgently bring to the attention of the executives of the industry the importance of the potential gas air conditioning load, in the belief that the major problems of invention and production have been solved, and that a wide field is open for close and progressive cooperation between gas utilities and equipment manufacturers through conference, education and promotional efforts, to attain highly desirable and profitable additional business.

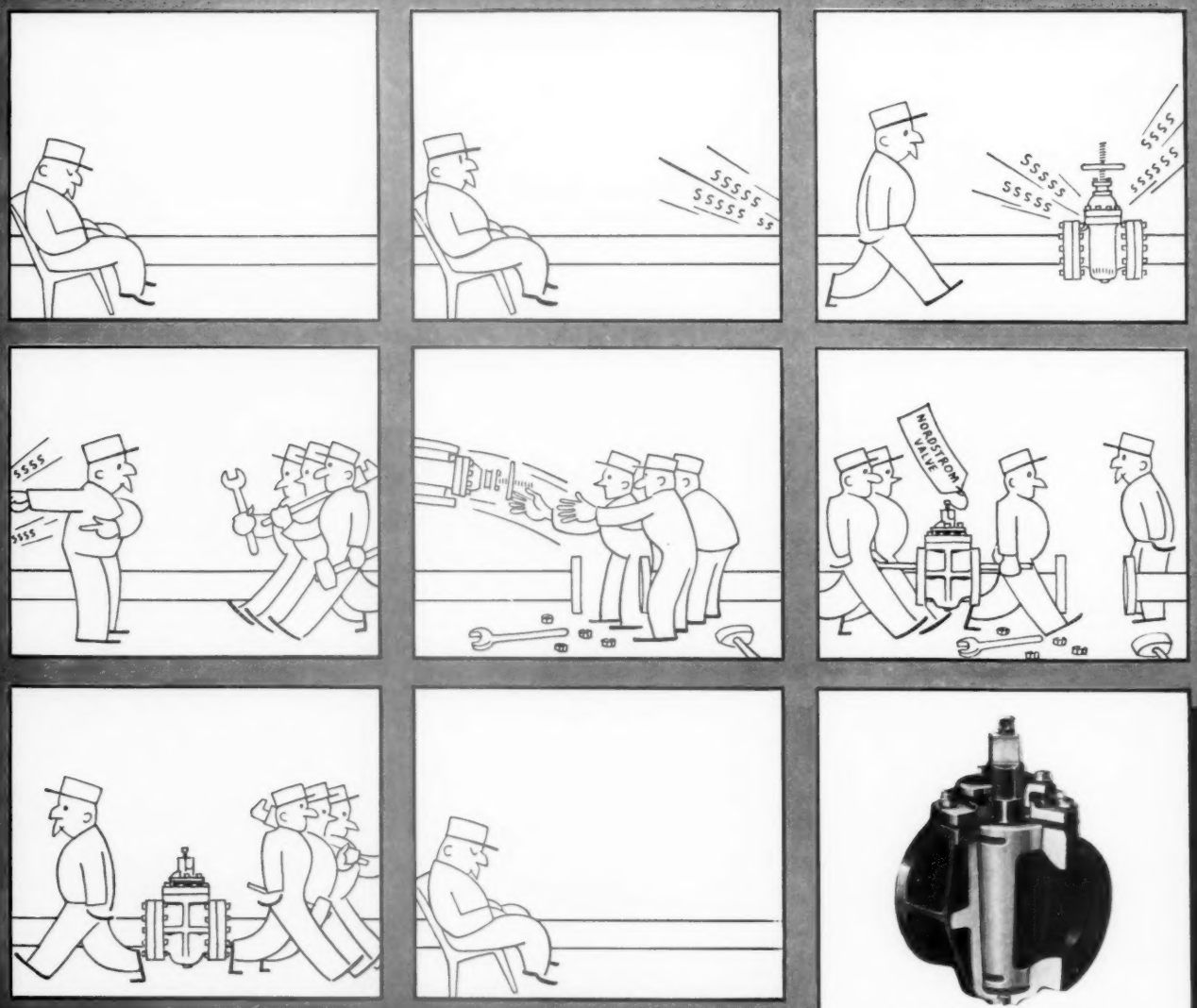
Derwent Elected Director A.G.A.

Watson E. Derwent of Rockford Illinois, vice-president of the George D. Roper Corporation, manufacturers of gas ranges, has been elected a director of the American Gas Association to fill the vacancy created by the death of E. R. Guyer of Chicago.

Mr. Derwent is also director of the Association of Gas Appliance and Equipment Manufacturers, New York, and chairman of that organization's domestic gas range division.



"He say—'Nordstrom Valve no stickee, no leakee.'"



EMCO-NORDSTROM TYPE

DON'T WAIT FOR LEAKS TO WARN YOU

In handling gas, chemicals, slurries, oil or other fluids, the ordinary valve is subject to leakage caused by packing failure, improper seating, channeling and corrosion. In the Nordstrom Lubricated Valve the plug is never separated from its seat. None of the line contents can enter between the seat and plug; none can clog the valve to prevent a tight closure.

The patented "Sealdport" system of Nordstrom Valve lubrication comprises an arrangement of lubricant grooves whereby, when the plug is in closed position, the seat between body and plug is provided with a complete framework of lubricant grooves, all interconnected and surrounding the port in the body. Hydraulic pressure is applied by the lubricant screw.

Nordstrom LUBRICATED VALVES

Sealdport Lubrication

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Complications Of Gas Rate Proceedings

By
Leo T. Parker
Attorney at Law
Cincinnati, Ohio

IT IS well known that in many instances gas rate legal proceedings require many years to finally settle. However, it is believed that with definite information, as to court rulings in especially selected complicated gas rate suits, readers may in their own minds simplify the law to a great degree.

Of course, in the past many definitions of the word "rate," have been applied in gas rate proceedings. However, modern courts will not permit extended litigations on such slight and unimportant technicalities, although older courts did so. Modern courts consistently hold that the term "rate" denotes "the price stated or fixed for gas or service supplied to the public, as measured by a specified unit or standard." Moreover, "fixed" gas rates are classified as contract rates which are voluntarily fixed or agreed upon between the contracting parties. "Administration" rates are rates fixed by the State Legislature or its authorized agents as a paramount governmental function, without consent or agreement of the parties.

Modern courts hold that the only power to fix rates, aside from contract, is by the State Legislature and by the Public Utilities Commission. For illustration, in a late case, the court said:

"We all acknowledge that the courts have no jurisdiction to make rates."

With respect to a Public Utilities Commission, or Public Service Commission, it is a creature of state statutes. It has no inherent or common-law power, and its jurisdiction always must affirmatively appear in the state laws before it can be legally exercised.

State Law Implied

On the other hand, if state laws empower a Public Service Commission, various higher courts have held that if such state law fails to *clearly* state that gas rates may be fixed by the Commission, it will be *implied* that the commission has this power and authority.

For example, in McCollum v. So. Company, 163 Tenn. 277, the court held:

"While the law does not expressly state that the fixing of rates by the Public Utilities Commission is exclusive, such, in our opinion, was the legislative intent, and by the great weight of authority the courts do not have jurisdiction over such matters until they have been submitted to and passed upon by the commission."

Also, see St. Clair Borough v. Tamaqua & Pottsville, 259 Pa. 462; West v. United Ry's & Electric Company, 155 Md. 572; Shreveport v. Southern Cities Distributing Company, 176 La. 994; Purcell v. New York Company, 242 App. Div. 292.

On the other hand, it must not be overlooked that in states where rates for public utilities are fixed and regulated by the Legislature, or by special statutory agencies created by the Legislature, the courts have no jurisdiction over rates. Therefore, unless some constitutional right or legal infirmity in proceedings, by which a rate is fixed, is involved, the courts have no jurisdiction or power to interfere with a rate which is, in fact, sanctioned by the Legislature, or by a body created by the Legislature.

Municipal Authority

It is interesting to consider the power of a municipality to enter into a contract, fix or regulate gas rates, and the necessary requisites to the exercise of such a power.

First, it is important to know that a municipal corporation possesses only powers: (1) expressly granted; (2) those necessarily or fairly implied in or incidental to the powers expressly granted; (3) and those essential to the declared objects and purposes of the corporation. However, the latter powers are not those simply convenient to the exercise of the declared objects, but those indispensable.

Therefore, municipal corporations may legally establish rates by contract and franchise, but they have no right to supersede the legislative power and fix charges to be made by gas companies. In other words, the higher courts consistently hold that the primary authority to fix gas rates is in the Legislature. See City of Niles v. Gas Company, 273 Mich. 255.

On the other hand, the State Legislature may delegate such power to municipalities, but only in express terms or by necessary implication. Many municipal officials have endeavored to exercise this governmental legislative function, or attribute of sovereignty, as a natural right. However, it must be delegated in express terms or by necessary implication, otherwise the established rates are illegal. Broadly speaking, in the absence of charter authority, statutory or constitutional provisions which delegate to municipalities the power in express terms or by necessary implication to establish gas rates a municipality has no power to fix by ordinance, or otherwise, the price at which a gas company shall supply gas and service to its consumers.

Validity of Contracts

An important point of law is that the power of a municipality to regulate gas rates through governmental functions, and the power to contract with gas companies to supply gas are quite different things. The determination of whether a rate is reasonable is a judicial question, but the power of fixing and regulating rates, although it may be delegated to a city to contract with reference to gas rates, is a legislative function and not a judicial one.

Therefore, contrary to the opinion of a majority of readers, the fact that a court may have jurisdiction of the suit to determine the reasonableness of gas rates does not empower it to retain jurisdiction to determine whether rates to be promulgated in the future by the gas company are unreasonable.

On the other hand, various higher courts have held that if a municipality makes a valid agreement or grants a franchise fixing gas rates or charges, the Public Utilities Commission has no power to change or alter such rates.

The distinction between fixing rates by contract and under governmental power was clearly recognized by the Supreme Court of the United States in the case of City, 184 U. S. 368. This court said:

"It is plain that the Legislature regarded the fixing of the rate as a subject for agreement between the parties and not as an exercise of a governmental function of a legislative character by the city authorities under a delegated power from the Legislature."

And, in Boerth v. Detroit City Gas Company, 152 Mich. 654, it was contended that the city had no power to regulate gas rates either by contract or legislation. It was held, however, that while the city had no legislative power to contract or establish rates, it had the implied power to prescribe rates by agreement, as a condition to the use of its streets by the gas company, because the State Constitution contained clauses which implied this authority.

Therefore, in view of this decision other higher courts have held that the right of a city to contract with reference to gas rates depends upon its right to control use of its streets. Moreover, some courts have held that any contract made and establishing gas rates is part of a franchise which grants to a utility the right to use the streets.

For instance, in Walker Brothers Company v. City Gas Company, 203 N. W. 492, it was contended that a contract between a municipality and a gas company, after the expiration of a franchise providing for certain rates, was merely a contract and not a franchise. However, the court said:

"Then viewed from this standpoint, it seems to me that the fixing of rates for a period of three years does amount to a franchise, and as such should have been first approved by the electors before it could be valid."

Obviously, in any and all proceedings to establish gas rates, the provisions of state laws must be taken into consideration. Ordinarily, state laws provide that citizens may petition the Public Utilities Commission to fix reasonable rates on expiration of a franchise, or other valid contract between the city and gas company, and such laws are valid. However, many years may be required to finally settle disputes of this character.

For illustration, in City of Detroit v. Public Utilities Commission, 286 S. W. (2nd) 368, the litigation involving gas rates was from time to time before the courts for 16 years and finally settled in 1939.

The facts of this case are a gas company during the past thirty years has manufactured, sold and distributed gas in a city. When its charter expired in 1923, the city entered into an agreement with the company and granted a franchise for an additional period of time. However, the franchise had not been ratified by three-fifths majority of the electorate of the municipality, as was legally required and the franchise was declared invalid by the court.

The controversy was continued when disagreement arose between the city and the gas company as to the rates to be charged. The gas company published a schedule of rates, whereupon the city passed an ordinance which in effect accepted these rates, but at the same time imposed a rental charge of $125,000 per month upon the gas company for the use of the city streets. The company then filed suit in the United States Court to enjoin the enforcement of this rental charge. Before the determination of such case the gas company promulgated an increased schedule of rates. The city then filed a suit setting forth that such rates were unreasonable and arbitrary, and asked the court to enjoin the company from putting the rates into effect.

The entire controversy up to this time had involved manufactured gas. However, both the municipality and the gas company had been investigating the feasibility of the use of natural gas and as a result of such investigation, and after considerable negotiation between the gas company and the city, it was decided to substitute natural gas for manufactured gas. Since the use of natural gas would render any decision in the pending legal controversy of temporary effect it was decided to make a new arrangement. Therefore, it was agreed between the municipality and the gas company that the pending suits should be settled and a new contract made for the furnishing and distribution of gas. This agreement was contained in a consent court decree which provided that the gas company was to receive a certain base earning and that profits above this agreed amount would be divided with the consumers. The agreement further provided that within a specified time in the future the company would promulgate a schedule of rates for consumers, and the gas company afterward promulgated a schedule of rates.

Later a city official filed a petition with the Public Utilities Commission claiming that the plan and agreement, contained in the consent court decree were fraudulent, and formulated solely in the interest of the gas company and to the damage and detriment of the rights of the public. In this petition it was requested that the Public Service Commission take jurisdiction to investigate the methods by which the rates were established; to investigate the effect upon natural gas prices in the state and of alleged monopolistic control; and to establish just and reasonable rates. Upon the filing of the petition, the Public Service Commission issued an order setting a date for the hearing thereof in view of ascertaining whether it had jurisdiction to hear and determine the matters set forth in the petition.

After an extensive hearing, and upon the opinion of the attorney general, the commission determined that it had jurisdiction to investigate and establish just and reasonable rates for natural gas in the city.

However, from the order subsequently entered by the Commission, the gas company and the City of Detroit appealed, contending that the commission had no jurisdiction because:

1. The consent decree is an agreement fixing rates between the municipality and utility, and by statute the commission has no jurisdiction where there is such a contract.

2. Where the franchise of a Public Utility has expired, only the municipality can petition the commission to fix rates, and the commission obtains no jurisdiction upon the petition of an individual consumer.

3. Since the suit of the city in the circuit court was brought by the city on behalf of all other consumers of gas, the consent decree wherein entered is binding on petitioner and all other consumers.

Therefore, at this point the primary question to be determined by the court was whether under the arrangement existing between the city and the gas company the Public Utilities Commission was excluded from jurisdiction to inquire into and determine rates.

The higher court held:

"1. The agreement and franchise, contained in the consent decree on being revocable at the will of the city, was void for the reason that it was not approved by a three-fifths majority of the electorate of the City of Detroit.

"2. The aforementioned agreement was invalid as a contract fixing rates on the expiration of the franchise, as no rates were provided therein.

"3. The circuit court of Wayne County had jurisdiction only to inquire into whether the rates charged were reasonable, and the matters in the decree, not being concerned therewith, were beyond its jurisdiction.

"4. On the expiration of a franchise to a gas company, where no contract exists with the municipality, a consumer has the right to petition the Public Utilities Commission to fix reasonable rates."

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Distribution Design for Heavy Househeating Loads

By

G. J. Heckendorn,

Gas Distribution Engineer
Public Service Company of Colorado,
Denver, Colo.

THE PURPOSE of this paper is to show how a heavy house heating load can be served by an existing system serving the usual domestic load with relatively little additional expenditure.

First, let us briefly trace the history of gas distribution systems. In the early days of the gas business, when lighting was practically the only load served, the candle-power of the gas supplied was a major consideration. Loads were light as compared with those now supplied by the average system. It was the common practice to locate the gas works at a low point in the system so that the gas would flow up hill and advantage could be taken of the pressure differential created by the difference in elevation between the gas works and outlying points. The earliest holders were of relatively light construction having only one lift and operating under a relatively low pressure. In most cases, the holder pressure was sufficient to supply the load without boosting and a reasonably uniform pressure was maintained throughout the system.

As the system grew and the lighting load was replaced by cooking load, problems of pressure control began to appear. The larger holders required for storage capacity were of the multiple lift type delivering higher pressure than the old holders. Futhermore, the pressure varied according to the number of lifts which were exerting pressure on the gas. It then became necessary to install a governor at the gas works to limit the pressure to that delivered by the holder in its lowest operating position. With increasing pressure drops it was customary to schedule the pressure delivered by the governor to correspond to the load and overcome the pressure drop in the system. This was a simple matter easily taken care of by one of the plant operators on duty. In some cases, also, weights were placed upon the holder to supply the necessary peak pressure, while in other cases, boosters were used. The tendency was to deliver low pressure at the extremities of the system during peak loads with higher pressures at points near the gas works. The obvious remedy was the installation of house regulators on services adjacent to the gas works. However, many operators hesitated to use small house governors which were relatively untried and were not in such general use as they are today, preferring to install district regulators fed by separate transmission mains operating at somewhat higher pressures.

Paper presented at the American Gas Association Natural Gas Section, Annual Convention and Distribution Conference, Houston, Texas, May 6-10, 1940.

The Doherty Ideal System

Let us review briefly the principles upon which the Denver gas distribution system is based. At the American Gas Association Convention in 1922, Henry L. Doherty and R. G. Griswold presented papers on the "Doherty Ideal Distribution System," and, in 1923, Mr. Griswold presented a paper giving further information along the same lines. These papers give facts, figures, and information which will be of interest to those who wish to design a satisfactory and economical system. Following are some of the high lights presented in these papers:

1. **General Principles.**
   a. **For greatest economy the cost of distributing mains per lineal foot should be as low as possible, other things being equal.**
   b. **Since conductivity costs more in small pipes than in large ones, the pressure drops per foot should be more in the distributing mains than in the feeder and transmission mains. The transmission and feeder mains should be as few in number as possible.**
   c. **Since conductivity costs less in one pipe than in more than one, transmission and feeder mains should be used as distributing mains on the streets passed through by them.**
2. **The most economical size of distributing main is not necessarily 2", although that is the size which is usually chosen. If a cheaper form of pipe having suitable characteristics could be found, it should be used.**
3. **With a given spacing of feeder mains, the capacity may be increased nearly threefold by installing a feeder at the midpoint.**
4. **For small loads, individual house regulators are not necessarily used. For large loads, where relatively high peak pressures are needed, regulators should be used on services as may be necessary to reduce pressures to a uniform and proper pressure for utilization.**
5. **A table was presented in which it was shown that the yearly cost of distributing gas was less with 2" distributors than 4" distributors for demands up to 8 cu. ft. per foot of main and that there was but little difference for demands as high as 16 cu. ft. per foot of main. This cost included pumping, which is not a factor in distribution cost where natural gas is supplied at customary pipe-line pressures.**

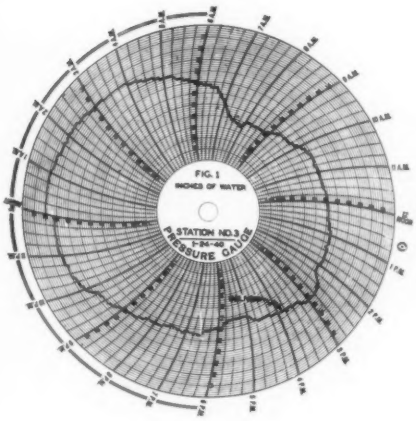
Systems of Distributing Gas

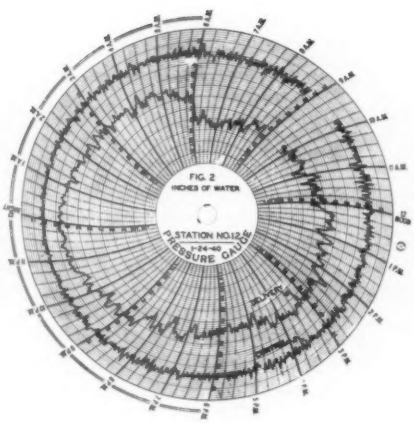
In general, there are three types of systems used for distributing gas; namely, the low pressure, the high pressure, and the Doherty Ideal or proportional pressure system.

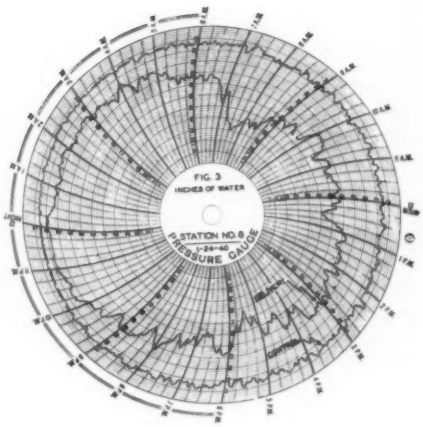
In the low-pressure system, relatively large mains are used, pressure delivered to the customer's meter is regulated by district governors and no individual house regulators are used. Of recent years, regulators have come into common use on central house heating appliances, floor furnaces, and refrigerators, but only a limited number are used on other appliances. In some cases, pressures are raised manually according to a time schedule, or an automatic device is used for the same purpose. Devices which raise the pressure according to the load or which use a round-the-block control are sometimes installed. In general, however, the amount of boost which can be obtained is limited by the allowable variation in pressure delivered to the customer.

In the high-pressure system, relatively small mains are used and regulators are set on each service. In general, the pressure is set high enough to supply the peak load and changes made in pressure setting are seasonal.

In the Doherty Ideal or proportional pressure system, as used in Denver, relatively small distribution mains are used and regulators are set on each customer's service. Station







pressures are regulated to suit the demand upon the system, being sufficient only to supply customers at the points of lowest pressure. With heavy loads, it is obvious that individual house regulators must be used to maintain a uniform pressure at the customer's meter.

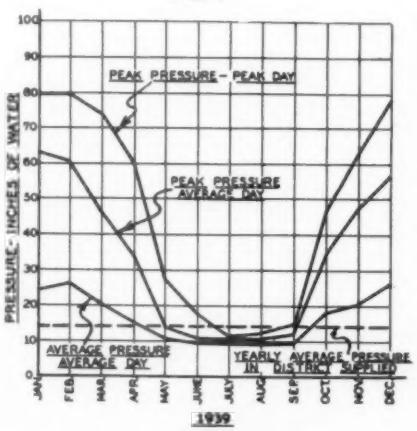
Pressure Schedules

The pressure at the various stations is raised as required on peak loads. Figure 1 shows the pressure carried at Station No. 3 on January 24, 1940, which was the all-time peak day for the system. The pressure delivered by this station is controlled by an operator who is guided by a telemetric circuit which furnishes him a record of the pressure at the low point in the system. It will be noted that the peak pressure is 86″ with a minimum pressure during the day of 46″ and night pressures immediately before and after midnight of 27″ and 20″, respectively, the difference here being due to a temperature change with corresponding load difference when the chart was changed at midnight. These pressures represent an extreme condition when there was considerable load on the system throughout the day and are not representative of the usual winter load condition.

Figures 2 and 3 are charts from Stations No. 12 and No. 8, in which automatic equipment produces peak pressures similar to the pressure at Station No. 3. In both cases, the line marked "delivery" shows the pressure at the outlet of the station while the line marked "control" shows the pressure on the round-the-block control line. The charts show actual operating conditions rather than the theoretically desirable pressures. Both Stations No. 8 and No. 12 are equipped with a so-called "fluctuation controller" and a "loader." The fluctuation controller controls the rate of change of pressure and prevents sudden fluctuations in delivery pressure.

Figure 5 shows the delivery pressure at Brighton, Colorado, where a commercial type of booster is in service, raising the pressure from 1.8 pounds per sq. in. off peak to 5.8 pounds per sq. in. on peaks. Figure 6 shows the pressure at the office near the low point in the system, where heavy commercial heating loads cause

FIG. 4

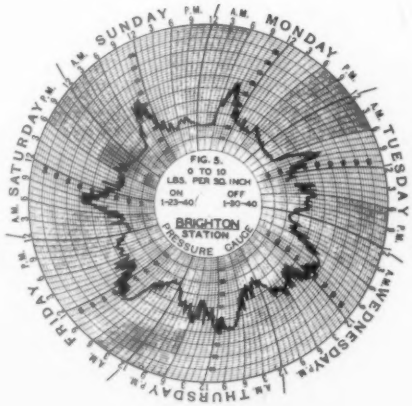


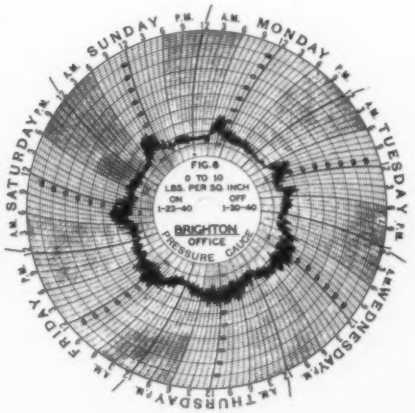
PUBLIC SERVICE COMPANY OF COLORADO
STATION NO. 3
PRESSURE CONDITIONS

variations in pressure. It should be noted that these charts are weekly and that actual changes in load cause the pressure variations rather than pulsations. In the operation of the booster, the pressure drop across an orifice plate in the delivery line is transmitted to a loading diaphragm connected to an adjustable lever which compresses the spring on a pilot regulator, which in turn pressure-loads the main regulator. The increase in delivery pressure is proportional to the pressure drop across the orifice. The loading diaphragm, having a relatively large area and long travel, is fed by a needle valve so that it can be set to travel slowly and limit the rate of change of pressure. An important point in this arrangement is that the regulator valves are free to move to compensate for changes in load or variations in the inlet pressure as may be necessary to maintain the delivery pressure at the setting of the pilot regulator. In other words, the rate of change of pressure is restricted rather than the actual movement of the valve.

Average Pressure

A study of the charts shown in Figures 1, 2, and 3 might lead one to





believe that the average pressure would be considerably higher than it actually is. These pressures apply only on the peak day and are effective on only a small part of the system. Figure 4 shows the relation between peak pressures and average pressures for the year 1939. The upper curve shows the peak pressure on peak days varying from a maximum of 80″ in the winter to 11.5″ in the summer. The next curve shows a peak pressure of 63.5″ on the average day in January, with 11″ in the summer. The average pressure on the average day for each month in the year was based upon a study in which pressure readings in representative districts were considered on a weighted area basis. The final yearly figure is the numerical average of the monthly pressures, giving a pressure of 14.47″ for the district supplied by Station No. 3. The corresponding figure for the entire system is 14.35″.

It is evident, then, that the proportional pressure system can carry a peak load approaching that which can be carried by a high-pressure system, yet the average pressure is comparable to that usually carried by a low-pressure system. The result is an economical system of high capacity.

Conclusion

It has been shown that heavy househeating loads can be served economically by the use of a proportional pressure system employing individual house regulators. It is hoped that the methods which have been described will be found useful in other situations and that this paper will be helpful to those faced with a rapidly increasing load.

Progress on Heating Appliance Code in California

By
Fred A. Herr
Los Angeles

PLANS for a proposed warm air furnace and gas heating appliance code for southern California cities, towns and counties drew a step nearer completion at a meeting of gas company officials, appliance manufacturers and distributors and city officials from Los Angeles and adjacent communities which was held in the auditorium of the Southern California Gas Co., 810 South Flower St., on May 15.

Called at the instigation of E. K. Strickland, sales promotion engineer, H. L. Warren, sales research engineer, and W. M. Jacobs, superintendent of service of the Southern California Gas Co., the meeting brought together some 20 representatives of the gas heating and appliance industry. A. B. Wicks, director of the Heating and Ventilating Division of the Los Angeles Department of Building and Safety, was present in an advisory capacity to provide the assemblage with data on the existing Los Angeles City gas heating code on which the proposed code is mainly based.

The need for adequate ordinance requirements relative to proper sizing have been regarded as essential for some time to prevent the widespread practice of overfiring gas heating appliances, which results from installation of undersized equipment. The heating trade of Southern California in general has concurred in the belief that a sizing code is highly essential, but many have felt that sizing requirements set forth in an earlier partial code were inadequate. In October, 1939, several sections of a proposed warm air and recessed gas appliance code, covering the subjects of sizing and ventilation, were prepared by a group headed by Mr. Strickland. The earlier draft met with some opposition on points relating to proposed specifications for calculating sizing requirements.

Since that time the disputed partial sizing section has been revised and a completed code prepared. The meeting on May 15 was called to discuss the revised sections as well as the expanded code in general.

Heating representatives and gas company officials present at the meeting were unanimous on the point that an ordinance for more adequate regulation of sizing is needed in many California communities. They differed, however, as to the manner of calculating sizing. It has been proposed in the earlier draft of the sizing section that sizing be based upon exact B.t.u. heat loss calculations. Some at the meeting contended that such calculations were too involved and complicated to be practical for use as an ordinance requirement. The section on sizing contained in the proposed code submitted on May 15, combined with charts and calculating sheets, eliminated the greater portion of the earlier objection, but not sufficiently to warrant its definite inclusion in its present form in the ultimate code.

The proposed code, which it is planned to offer to Southern California towns and cities for adoption by reference, is patterned, in the main, after the existing Los Angeles gas heater and recessed gas appliance ordinance. Revisions from the sections submitted last fall and variances from the Los Angeles code deal mainly with sizing, which, under the current provisions of the proposed code, would be based on size of room served by the appliance.

The Los Angeles city code specifies that the gas furnace input must be eight times the cubical content of a room. The proposed code would base the input of a furnace on certain actual heat loss calculations. In opposing adoption of the Los Angeles city code sizing requirements, some of those at the May 15 meeting contended that the input ratio of eight times the cubical content of a room would not apply in all cases. They offered that in some cases this ratio would be too small, and in other cases too high.

The revised section of the proposed code now under consideration specifies that the input rating of warm air furnaces and recessed heating appliances designed to burn solid fuel shall be determined by the following formula:

$$B = 350\ G\ [10.02\ (R-20)]$$

where
B = B.t.u. input rating
G = grate area in square inches
R = ratio of heating surface area to grate area.

Other provisions of the proposed code are:

That the B.t.u. input rating of a warm air furnace or a recessed heating appliance be not less than the sum of the products obtainable by multiplying the areas in square feet of exposed construction which bounds or encloses the space to be heated, and the cubical contents in

cubic feet of the space to be heated.

That every room containing a warm air furnace be provided with a permanent ventilating system capable of supplying sufficient fresh air to properly support combustion and ventilate the room; that, unless adequate permanent ventilation is otherwise provided, ventilation must consist of foot-square openings no higher than one foot above the floor and not lower than one foot below the ceiling for furnaces with manufacturer's input rating of 140,000 B.t.u. per hour; that where the input rating is over 140,000 B.t.u. per hour that the opening must be increased one square inch for each additional B.t.u. input per hour; that every warm air furnace using gas or other fuel shall have an air intake; that every gravity warm air furnace, not equipped with an approved automatic control, arranged to shut off the main fuel supply when the temperature in any warm air pipe exceeds 250 deg. F., shall have one warm air outlet with a minimum of 25 square inches; and that every warm air furnace used in mechanical warm air heating systems must be equipped with an approved type automatic control for shutting off the main fuel supply when temperature in any warm air pipe exceeds 250 deg. F.

The proposed code provides also that every mechanical warm air heating system shall have an approved fan of sufficient size and capacity, and be so constructed and installed that such system will deliver to the space to be heated a quantity of air not less than that determined by the following formula:

$$C = B \times 0.0086$$

where

C = cubic feet per minute

B = B.t.u. input rating.

Every mechanical warm air heating system serving any room used for living or sleeping purposes, must, under the provisions of the proposed code, have a fan so installed and connected that it will operate automatically with the operation of any warm air furnace.

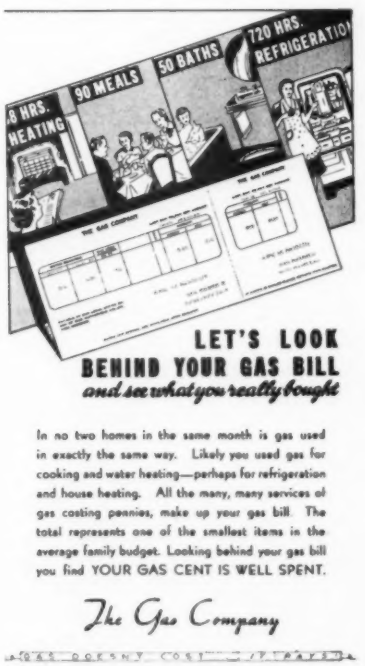
In all other major provisions applying to gas vents; furnace pipes, boxes and fittings; approval and construction of recessed heating appliances and warm air furnaces; installation and repair of those items; location and installation of warm air furnaces; testing of gas burning furnaces, etc., the proposed code is patterned on Los Angeles City Ordinance No. 77,786 approved March 18, 1937.

Further meetings to adjudicate the minor points on which agreement was not reached in May will be held in June and July, subject to the call of Mr. Strickland. It is planned, after a satisfactory code has been completed and has been adopted by some of the smaller Southern California towns, to move for the inclusion of the code as the Heating and Ventilating Section of the present Uniform Building Code of the State of California, which presently makes no adequate provision for warm air and gas fired heating units.

"The GOOD OLD DAYS"
...DID NOT APPLY TO GAS SERVICE
True, gas was cheaper in the "good old days" but, also, certainly the service was cheaper. Gas pressures varied and often the supply failed. Appliances were crude affairs. Modern gas service is dependable, pressures are even, quality standardized. This kind of gas service is worth more — but it still does its work for less than other fuels. YOUR GAS CENT IS WELL SPENT.
The Gas Company
GAS DOESN'T COST — IT PAYS

NO ONE EVER SANG IN THE WASH TUB
Shades of yesteryear! How well many of us remember those Saturday ordeals in the wash tub. But today automatic heating of water with gas — plus modern plumbing — have made the bath a frequent event, anticipated with pleasure. Expensive? Not at all! The cost of heating your bath water falls under a penny. When enjoying your bath remember that YOUR GAS CENT IS WELL SPENT.
The Gas Company
GAS DOESN'T COST — IT PAYS

10-YEAR UNCONDITIONAL GUARANTEE
1940 Servel Electrolux Gas Refrigerator
The Ohio Fuel Gas Company
Only ONE Automatic Refrigerator Merits This Unmatched Guarantee
-the GAS Refrigerator Because It Freezes Without Moving Parts
Years of experience with Servel Electrolux gas refrigerators has made it possible for The Gas Company to make this sweeping guarantee. You can now purchase any 1940 Servel Electrolux with full assurance of not having to spend one penny on the upkeep or replacement of any part of the freezing system for at least ten years. Get full details at once.
SERVEL
The Gas Company
GAS DOESN'T COST — IT PAYS


8 HRS. HEATING
90 MEALS
50 BATHS
720 HRS. REFRIGERATION
LET'S LOOK BEHIND YOUR GAS BILL
and see what you really bought
In no two homes in the same month is gas used in exactly the same way. Likely you used gas for cooking and water heating—perhaps for refrigeration and house heating. All the many, many services of gas costing pennies, make up your gas bill. The total represents one of the smallest items in the average family budget. Looking behind your gas bill you find YOUR GAS CENT IS WELL SPENT.
The Gas Company
GAS DOESN'T COST — IT PAYS

Four of the newspaper advertisements used by Ohio Fuel Gas Co., Columbus, O. They are among the scores of recent ones, with plenty of variety and effectiveness. "The Good Old Days" are played up in the two upper ads. Others revolve around the theme "Your Gas Cent is Well Spent." These four have been used in two column and three column width.

Atlanta Presents "Another Decade of Progress"

By
O. C. Waters
Atlanta Gas Light Co.
Atlanta

On April 16th, 17th and 18th the Atlanta Gas Light Company entertained more than 16,000 visitors to a gas show commemorating 10 years of natural gas in Atlanta. This occasion gave an opportunity, through three days of open house, to show to the public by exhibits the progress made in gas utilization and appliances during the last ten years. Displays also showed equipment used and depicted the operations of the various departments, giving the public an opportunity to learn something of what is involved in providing gas service for them.

Since the show was to be given as a tenth anniversary celebration, the name, "Another Decade of Progress," was selected and plans were worked out by a committee of twelve Company employees with the cooperation of the entire organization, various manufacturers and many of the larger customers of the Company.

Service Awards

On the evening preceding the opening of the show a banquet was given all employees of the Company at which time service buttons were awarded to 168 employees for 10 to 14 years service, 65 employees for 15 to 24 years service and 31 employees for service exceeding 25 years. A preview after the banquet gave members of the Company organization an opportunity to view the exhibit before it was opened to the public.

The show was held in the Company's main office and was made up of four general exhibits composed of appliance displays, exhibits of commercial and industrial gas users, operating exhibits and miscellaneous displays of general interest. It was attempted to include in each group a diversity of displays to attract men, women and children, and maintain general interest throughout the show.

Visitors were requested to go to the fourth floor of the building, working from that point down to the basement to see all the exhibits with the minimum of confusion.

Manufacturers' Exhibits

On the fourth floor were located forty-four booths taken by local manufacturers who used gas in making their products. These products, ranging from foods to steel, were interesting not only because of the wide range of articles displayed, but because of the variety of uses of gas represented in their manufacture. There were no special exhibits on the third floor, but visitors were given an opportunity to inquire concerning the operation of our accounting department, see how bills were printed and learn of the number of persons required to carry on that part of the business. On this floor prizes were given each night.

The visitors then went to the second floor where they registered. The auditorium located on this floor was given over to a picture contest sponsored by the Atlanta Camera Club, with prizes given for the best pictures taken of an Electrolux. To make the pictures more interesting, a professional model was available.

In other parts of the second floor were located a scale model of the Georgia School of Technology and a display of natural gas products furnished by the United States Bureau of Mines, both of which attracted considerable interest. One of the most interesting exhibits was one in which four rats were shown in a glass box containing an atmosphere in which natural gas was present, and designed to show that natural gas is not toxic. Probably fifty per cent of the people viewing this exhibit expressed surprise that the gas was not poisonous, and most of them left with much less fear of the fuel they used in their homes.

Appliance Display

On the main floor was located the general appliance display consisting of new models of cooking, water heating, refrigerating and house heating appliances. There were also several items of particular interest to the public. A gas radio attracted much attention since few people had heard of such an appliance, and some could not be convinced that it was genuine. There was also the Electrolux used by the Dionne quintuplets with appropriate background, the original Servel gas refrigerator and an exhibit of the inventor's laboratory equipment. Many people gathered around the talking gas range which gave a very good sales talk on gas cooking. To carry out the original idea of a decade of progress, 1930 models of gas ranges, refrigerators and water heaters were displayed beside 1940 models of the same type appliances. Many good prospects were obtained from and numerous sales were made to persons who inquired of the salesmen on duty concerning these appliances.

Facilities were provided in the basement for serving refreshments to everyone. Here was also located the industrial and commercial displays consisting of restaurant and hotel equipment, industrial burners and other large appliances. Two air conditioning plants, one of seven tons and the other of fifteen tons capacity, were in operation and drew many questions from interested persons. A one thousand pound Electrolux unit used to cool water in the building also brought some inquiry. Attracting most attention generally in this exhibit were models of gas engines and a small steam engine operating from a 1/10 horsepower steam boiler. Contrary to what was expected, many women evidenced keen interest in the entire industrial display.

Operating Exhibit

The operating exhibit drew more attention than was expected, principally because the items displayed were strange to the average person. Cross sections of various types of pressure regulators and meters were shown as well as types of cast iron and steel pipe joints including welded, screwed and Dresser connections. Construction equipment in cross section showing methods of making large and small high pressure and low pressure main taps were also shown as were methods of pipe coating, holiday detection and welding. Causing much interest was a gas flare which was given the name, "Symphony of Light." This consisted of a gas flame enclosed in a glass case and so operated that vari-

35,000 tons of plunging steel

...yet a child could steer it!

THE SECRET? CONTROL

Steering today's dreadnaught requires less brawn than guiding a baby carriage. The mighty bulldog responds instantly to the slightest touch of a hand on a tiny lever. That's *efficiency* through *control!*

Likewise, the efficiency of gas cooking has been increased many fold by another modern system of control . . . the Harper Burner System. It has taken the *guesswork* out of cooking by bringing to today's gas range accurate responsiveness to every heat requirement to a degree approached by no other cooking unit. Small wonder the gas industry is displaying so much interest in the Harper Burner System . . . daily it is selling more housewives on *gas.*

CONTROL *is the secret here, too*

● The Harper Burner System is a patented invention whereby each of the burners on the range is actually 2 burners in 1 . . . a burner within a burner . . . both operated and controlled by a single handle.

This arrangement affords a high-speed STARTING BURNER to *start* foods boiling and for fast frying . . . plus a small, central, economical COOKING BURNER for *maintaining* the cooking. The COOKING BURNER can be used entirely independently of the STARTING BURNER. No other top burner possesses this vital advantage — which insures easy, accurate control: just the right heat for every type of top-burner cooking . . . every time.

HARPER-WYMAN COMPANY
8562 Vincennes Avenue, Chicago, Ill.

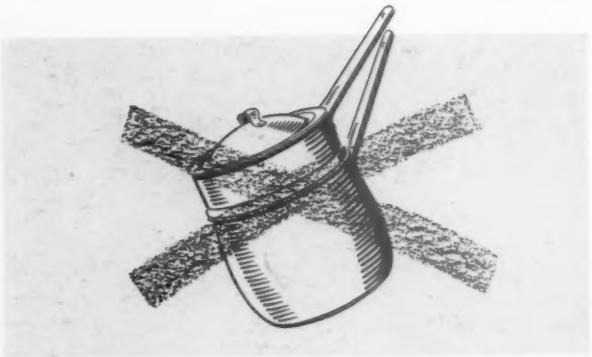
HARPER BURNER SYSTEM

HARPER BURNER SYSTEM

Demonstrates GAS at its best

SEE OTHER SIDE OF THIS PAGE

No double-boiler is needed
with the Harper Burner System



boiling with the STARTING BURNER for three or four minutes.

This flexible, simple, and accurate control that makes for so much better and more economical cooking, is of interest to the gas industry, and important to the promotion of gas appliances. Every time the Harper Burner System is demonstrated, GAS is truly presented at its best.

● With ordinary burners, most people find it necessary to use a double-boiler when cooking cereals or semi-liquids. But with the Harper COOKING BURNER, the direct flame way is quickest, easiest, and most efficient.

It is only necessary to use a fairly heavy vessel (to properly conduct the heat) and lower the COOKING BURNER to between one-half and three-fourths height. Stirring once or twice during the cooking time is desirable, just as in using a double-boiler.

This is another salient advantage of the Harper Burner System. Heat can be accurately controlled down to the lowest point . . . to a degree impractical with other top burners of the "simmer" type.

If a double-boiler is preferred, the Harper COOKING BURNER still is ideal. The handle is simply turned to *full* cooking flame after brisk

The Harper Burner System provides a burner within a burner. The diagram above shows how the COOKING BURNER operates entirely independently of the STARTING BURNER. Yet both are controlled by the same handle.

We shall be glad to send you, without cost, two booklets that tell the complete Harper Burner System story . . . "Modern Methods of Top Burner Cooking" and "The Greatest Cooking Discovery in 40 Years". They should be valuable to anyone interested in the promotion of gas cooking and gas appliances. *Harper-Wyman Company, 8562 Vincennes Avenue, Chicago, Ill.*

HARPER
BURNER SYSTEM

SEE OTHER SIDE OF THIS PAGE

1—A model of the shop and warehouse building was interesting to both young and old. 2—H. C. Wolf, President, greets customers who have used gas for 50 years. 3—This model depicted the transmission of gas from Louisiana to Atlanta. In the foreground is a model derrick and well indicating depth of bore and strata. 4—The gas radio puzzled many people.

ous colors running from blue and purple through red, orange, yellow and green were obtained. Another attraction was a group of old pipe including a section of the Versailles line laid in 1662, a piece of wooden pipe and a piece of 13/16" cast iron screw pipe laid in Louisville about 1842.

A meter shop display consisting of a prover gave people an opportunity to see how their meters were tested, and to make inquiry of the man assigned to that exhibit.

A display of laboratory equipment and the service school did much to illustrate to visitors the care taken in the selection of appliances and the training of men who provide service for them. Methods of testing oven temperatures so arranged that they could be checked were presented with the result that the many people who were interested were convinced of the even temperatures throughout the gas oven.

A display of pipe rings ranging from 30 inch to ⅛ inch, of large and small meters and large and small pressure regulators attracted some attention as did maps showing the mileage of mains and pictures of regulator stations, warehouses and office buildings. There was also shown a model of the company's shops and warehouse scaled one inch to six feet, complete with sidetracks and automobiles and trucks representing the transportation equipment. The young people and children in particular liked this display because it more nearly approached a toy than any of the other exhibits.

Probably the exhibit which received more comment than any other was a model of a pipe line depicting the transmission of gas from Louisiana to Atlanta, a distance of 460 miles. This model was 36 feet long and 3 feet wide. The topography was approximately to scale, major rivers were shown and principal cities were indicated by small groups of miniature buildings. The face of the model, representing a cross section of the earth, was painted to show the rock formations and a gas well was set into the face. Glass tubing ran the length of the display following the contour of the ground with a mixture of water and oil being pumped through it to give motion. At the terminus a copper tube carried gas to a glazed meter to which was connected a range permitting people to see the operation of the meter while measuring gas.

Prizes and Gifts

In addition to the unusual objects displayed to attract people, more than seventy-five prizes were awarded and small gifts were provided. The prizes included a refrigerator, a C.P. range, an automatic water heater, several space heaters and smaller prizes among which were hams, baskets of food, dishes, cookbooks and many other articles. Employees sent personal invitations and the radio and

newspapers were used for advertising.

The 16,000 attendance was way beyond the 10,000 hoped for and the acceptance by the public was most gratifying. Each day's attendance was much greater than the preceding day which fact considered with requests for showing to school children and regrets expressed by many at not having attended, leaves little doubt that the number might have been more than doubled during another three days showing.

Comments heard concerning every part of the show, the interest evidenced by questions asked, and expressions made concerning the educational value clearly indicates the value of such a show in building confidence in the safety, reliability and economy of gas as a fuel and the sincerity of the company in its desire to provide the best in service and appliances. It is also felt that there has resulted a closer knitting together of the organization as a whole.

There isn't the slightest doubt that the cost of such a venture will pay any company in the industry a most satisfying return. The public in any city is anxious to receive factual information, particularly if it is given in such a way as to hold their interest. Too much has been said by competition and others that may, at times, be misleading, that would appear to put us in the horse and buggy days, that would term the gas industry a dead or dying industry.

We have all the romance, all the glamor, all the interest that any industry may claim, nor are we dead and dying. It is well to see that our public has all the facts, and we have just found out that they thoroughly enjoy seeing and hearing about an industry that has so much to offer.

The End of The "Monkey Wrench" Controversy

By

W. F. Schaphorst

Newark, N. J.

I believe that at last I have found something authentic on this much discussed subject, "Who Invented the Monkey Wrench?" and am reproducing my discovery herewith exactly as it appeared in the original publication.

While looking through an old book in a second-hand book store, "Appleton's Dictionary of Machines, Mechanics, Engine-Work, and Engineering," Volume II, published in 1852, I came upon this exceptionally interesting item concerning the "Screw Wrench," invented by S. Merrick, Springfield, Mass., and patented August 17th, 1835.

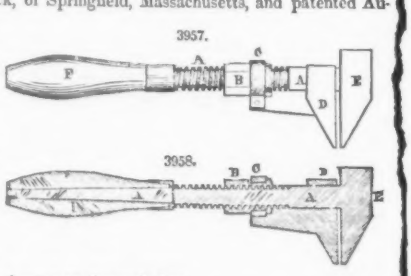
This should put an end to erroneous statements repeatedly made that the name "Monkey Wrench" comes from the name of its inventor Charles Moncky. For instance, four years ago, I asked Ripley the "Believe-it-or-not" man the source of his authority for the claim. He quoted "The Little Giant Cyclopedia and Treasury of Ready Reference" published in 1901, in which this information appeared, "Charles Moncky, the inventor of it, sold his patent for $2000 and invested the money in a house in Williamsburg, Kings County, New York, where he now lives." I tried to verify the claim but got nowhere. So, naturally, I was more than pleased to find this reproduced item which possesses all the ear marks of authenticity.

In view of this item we can now correctly say that the Monkey Wrench has been in use for 100 years.

WRENCH, SCREW. Invented by S. Merrick, of Springfield, Massachusetts, and patented August 17, 1835; patent extended May 14, 1849.

In the drawings, Fig. 3957 denotes a side elevation; Fig. 3958, a vertical central section. The same letters refer to like parts in each figure.

A is the *main bar;* B, the *nut* fitted to a screw, cut on the two opposite edges of the main bar; C, a *strap*, which passes around in a groove formed in the nut B, and is riveted to the end of the slide-jaw D. The collar on the end of the nut B takes into a corresponding groove in the slide D; E, the end of the main bar, which forms the stationary jaw of the wrench; F, the handle. The nut is made to move freely in the strap C, and, by turning it to the right or left, the slide D is moved to any desired point on the main bar.



The principal advantages possessed by this wrench are, its *simplicity* of construction and consequent *cheapness*—its *compactness*, *durability*, and *strength;* the size of the main bar being duly proportioned to the power applied, as will be seen in the figure.

8" Pipe Line for Montana-Dakota Utilities Co.

Montana-Dakota Utilities Co., Minneapolis, Minn., has begun construction of 110 miles of 8" ID pipe-line for transmission of natural gas from the Bowdoin Dome gas field in Valley and Phillips Counties, Montana, to a point near Glendive, Montana, by way of Fort Peck. Connection will be made at Glendive with the main pipe-line system of the company extending into parts of Minnesota and North Dakota, where gas is furnished to various municipalities. Included in the project is distribution piping of about five miles for several towns, in 3" ID and 4"ID sizes. Pipe is manufactured by Youngstown Sheet and Tube Co. and will be electric weld, with 7/32" wall thickness; 4,700 Dresser couplings will be used as joints.

Rubber Putty

A new catalog section on its line of Plastikon rubber putty, adaptable to many uses in building and industry, has been published by The B. F. Goodrich Company, Akron, Ohio. Copies will be sent upon request to the manufacturer.

It is claimed that the product retains a degree of plasticity for long periods, does not harden, dry out or crack, and that it produces and maintains the air-tight and water-tight seal essential in many cases, has great resistance to deteriorating effects of corrosive chemicals, chemical fumes and salt spray, adheres strongly and permanently to wood, steel and glass despite the action of sunlight, vibration or presence of corrosive chemicals and fumes. Severe climatic conditions effect no changes or deterioration over long periods.

MacArthur Elected President of Koppers Connecticut Coke Co.

Hugh MacArthur, vice president and manager of The Connecticut Coke Company, also has been elected president and a director of Koppers Connecticut Coke Company. Both firms have their headquarters in New Haven.

Mr. MacArthur joined the Koppers organization in 1928 as a salesman for Koppers Company, Brooklyn division, Brooklyn, N. Y., and was made sales manager of Koppers Connecticut Coke Company in 1930. He has been vice president and manager of The Connecticut Coke Company since 1935.

Certified by A.G.A. Testing Laboratory. Sizes ¼" up.

For Reliability

BARBER

Gas Pressure REGULATORS

Correction of uneven gas pressure adds to the economy and satisfaction derived from any *gas* appliance. Barber Pressure Regulators *make gas behave*—help make any gas burning appliance perform at its best. Only *tested* principles of construction and the *finest* of materials and workmanship go into Barber Regulators. The result is long-time dependability. Appliance makers like Barber Regulators because of their *modern* styling, which conforms to the design of present-day appliances. For Regulator satisfaction—standardize on Barber!

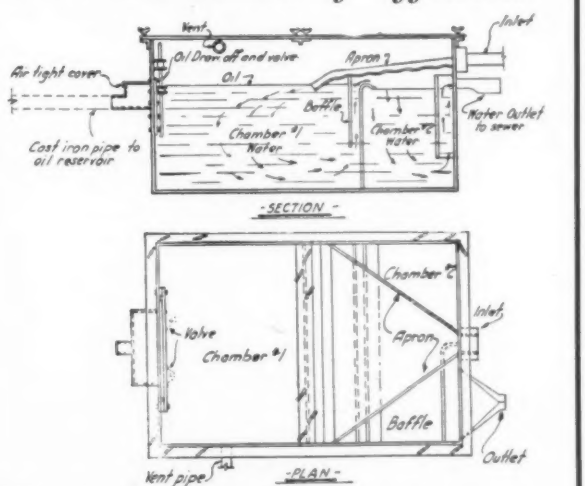
- All-bronze body—brass working parts. Tested for operation within 3/10 pressure drop. Write for full information on Barber's line of Gas Conversion Burners, Appliance Burners, and Pressure Regulators.

THE BARBER GAS BURNER CO.

3704 Superior Avenue • Cleveland, Ohio

The Barber Gas Burner Company of Michigan
4475 Cass Avenue, Detroit, Michigan

For Treatment of Effluent



The Morse Separator enables the separation and recovery of tar and oils from your effluent. It clarifies to a point which satisfies local and federal regulations on pollution.

Separation is effected by passing the raw effluent over a riffle board which separates oils and tar and passes clarified effluent to sewer.

Handles large volumes with relatively small units. Continuous in operation. No moving parts. Small labor cost. Successfully used by outstanding gas and oil companies and many industrials.

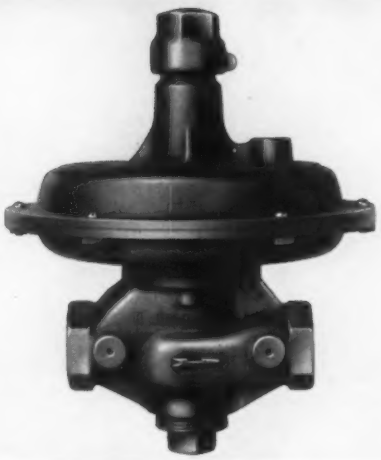
Bulletin 301 sent on request.

MORSE ENGINEERING INC.

15 Park Row New York, N. Y.

ANOTHER REYNOLDS TRIUMPH

THE NEW ADDED CAPACITY REGULATOR IN THE LOW PRESSURE field!



The New Series of REYNOLDS Low Pressure Regulators has greater capacity than any comparative Single or Double Valve Regulator. It has fifty percent greater capacity than the same size, old type Regulators. Everywhere engineers who have tested it admire its remarkable performance.

All of this without loss of the Reynolds Accuracy—the Unequalled Sensitiveness—and Rugged, Long Lived Service. Write for details as to how this new Regulator will solve your Low Pressure Gas Control problems. Let our Engineering Department assist you.

REPRESENTATIVE . . .

Eastern Appliance Co.
Boston, Massachusetts

BRANCH OFFICES . . .

422 Dwight Building,
Mike Meuffels, *Sales Engineer*
Kansas City, Missouri

2nd Unit, Santa Fe Bldg.,
C. B. Seidenglanz
Dallas, Texas

Wm. A. Ehlers, 268 Park St.,
Upper Montclair, N. J.

REYNOLDS *Gas* REGULATOR CO ANDERSON INDIANA U·S·A

GAS CONTROL SINCE 1892

Left to Right:—S. J. Beale, Chairman of the Builders' Section A.G.A. and General Manager of West Gas Improvement Co., New York, was one of the first to register. T. L. Robey, Washington Gas Light Co.; C. S. Ingwall, Binghamton Gas Works; J. W. Penney, Boston Consolidated Gas Co.; A. R. Powell, Koppers Company and L. J. Willien, Public Utility Engineering & Service Corporation, Chicago.

Photos, A. Gordon King

Production and Chemical Conference

WITH well over 300 registrations, the Joint Committee Conference of the Production and Chemical Committees of American Gas Association presented a comprehensive and interesting program at Hotel Pennsylvania, New York, during May 20th to 22nd.

In addition to the morning and afternoon meetings, Round Table luncheon conferences of an informal nature covered the following topics: Coal Carbonization and By-Products; Water Gas Operation, and Chemistry in the Gas Industry. Open discussions took place in which many participated.

At the first regular morning session following the opening address by W. K. Beard of Philadelphia, chairman of the Gas Production Committee, words of greeting were extended by Alexander Forward, Managing Director of the A.G.A., followed by an address by C. E. Paige, President of the Brooklyn Union Gas Company.

"The Effect of Marketing and Refining Methods of the Oil Industry on Future Availability of Residue Enriching Oils" was presented by A. E. Pew, Jr., Vice-President of Sun Oil Co., Philadelphia—published elsewhere in this issue—followed by a paper by W. F. Kugel and E. M. Bliss of Public Service Electric and Gas Co. of New Jersey on Empirical Relation Between the Physical Characteristics of an Oil and Its Yield as Determined by a Cracking Test.

The afternoon session, following the opening remarks by S. J. Modzikowski of Chicago, Chairman of the Chemical Committee, offered the second progress report on Determination of Water Vapor in Gaseous Fuels. Two papers on Gas Purification were submitted, one by James W. Penney and Arthur E. Sands on Evaluation of Materials; the other by Dr. G. E. Seil on Living Organisms in Purification.

Light Oil Recovery from Coke Oven Gas by W. Tiddy and M. J. Miller of Semet Solvay Engineering Corporation; Motor Fuel from Coke Oven Light Oil by B. J. C. Van der Hoeven; Sludge Inhibitor and Novel Still for Light Oil Recovery by O. W. Lusby and C. E. Utermohle of Baltimore, and a paper by H. M. Blain, Jr., of New Orleans on High B.T.U. Gas for Peak Load and Standby filled the afternoon program.

The third day's program opened with an address presented by W. R. Teller, research engineer of A.G.A. Testing Laboratories on the Influence of Pilot Design on Tendency to Outage, followed by one on the Determination of the Cause of Pilot Out-

Here we have W. S. Guitteau, Vice Pres. Stacey Bros Gas Construction Co.; L. G. Crenshaw, Connelly Iron Sponge and Governor Co., and T. B. Barclay, Combustion Utilities Corporation. Also, left to right: M. Bermann, E. C. Uhlig and E. J. Murphy all of Brooklyn Union Gas Company.

Photos, A. Gordon King

age by W. L. Shively of Everett, Mass., and a paper on Measureable Characteristics of Foundry Coke by B. P. Mulcahy of Indianapolis. A paper by J. H. Taussig, Jr., of Philadelphia, on Air-Steam Ratios will appear in the July issue.

The report of the Gas Conditioning Committee was read by L. J. Willien, Chairman, followed by a paper on Comparison of Packings in Absorption and Stripping by Prof. C. C. Furnas of Yale University, and one by V. J. Altieri of Everett, Mass., on Stresses and Strains Generated During Carbonization.

National Association of Manufacturers Pledges Full Cooperation for Defense

The following is a statement issued by H. W. Prentis, Jr., president N. A. of M.:

"Modern methods of war have made national defense an industrial operation of the greatest magnitude.

Preparation for defense is a task of stupendous size and extreme difficulty. The responsibilities are clear. Congress must define the area which the United States is to defend. Military experts must determine the measures for that defense. But private production must provide a major part of the arms and equipment required by our forces on land and sea and in the air. At the same time it must continue to supply the needs of our civilian population.

The lesson this tragic hour has taught is that capacity and efficiency in manufacturing production determine a nation's ability to defend itself.

It is evident that handicaps to industry in production for the nation's protection are as dangerous as Fifth Column intrigue. Barriers to economic efficiency will imperil the nation as much as outright sabotage. Obstructions to industrial production will give aid and comfort to a potential national enemy.

Our own experience in the Great War, the Allies' experience thus far in this war, show that the bottleneck of supply is procurement—the term procurement embracing specifications, purchases, inspection and delivery. For successful results procurement must be put in the hands of practical, experienced civilians. Unless this is done, the processes of production by manufacturers will be constantly hampered and the program of defense will be subject to long delays and very high costs. Placing the job in the hands of those best qualified by experience to execute it will command public confidence that the planned program can and will be carried through.

Production for national defense requires the expansion of plants and equipment which, in the light of World War experience, will be virtually valueless when the emergency is passed. Ample private capital is available to finance the necessary expansion of plant and equipment. Its use must be encouraged because it will to this extent prevent increase in the public debt. But it is clear that tax laws and regulations must be modified to permit wiping out the investment during the useful life of the new facilities.

It is highly important also that provision be made for the capacity operation, night and day, of new and existing facilities both in government plants and in those private industries essential to defense.

None of these things requires the abandonment of any sound social legislation. They do mean the removal of such legislative and administrative restrictions on industrial production as have been condemned by both military and industrial experience.

The National Association of Manufacturers pledges the knowledge and experience and the utmost energy of its members to the task ahead."

Around the foyers during the Conference. Top:—L. E. Knowlton, Providence Gas Co. and Vice Chairman of Gas Production Committee; W. K. Beard, Philadelphia Gas Works Co. and Chairman of Gas Production Committee; F. W. Hartzel, Philadelphia Gas Works Co. Center:—R. J. Horn and C. I. Richards of Central Hudson Gas & Electric Co. on left and right; G. T. Macbeth of Westchester Lighting Co., Mt. Vernon, in center. Bottom:—left to right, J. M. Purcell, City Gas Works, Richmond, Va.: Geo. W. Parker, St. Louis, Mo.; Dene Workman, Ebasco Services, Inc., New York and Charles H. Schroder, Bernitz Company.

Photos, A. Gordon King

LAVINO "ACTIVATED" OXIDES

WE CAN PROVE YOU CAN GET FAR MORE H_2S REMOVAL PER POUND OF OXIDE!

Call us in; let us show you exactly how much a Lavino Activated Oxide can save you —without effort on your part!

LAVINO ACTIVATED OXIDE • Supplied in unmixed form . . . ready for mixing with your own carrier . . . LAVINO "ACTIVATED" OXIDE is readily adaptable to the needs of your plant, whatever its size or requirements.

Not merely a "satisfactory" purifying medium by virtue of incidental properties, it is a material made specifically for maximum H_2S removal. As such, its practical capacity and activity are controlled factors. And, it offers maximum activity for trace removal and maximum shock resistance.

Contains 70% Active Fe_2O_3 as received; approximately 10% moisture.

LAVINO ACTIVATED SLURRY • A new development in purifying materials, is shipped in steel drums . . . ready, with the addition of a small amount of water, to mix with any type carrier.

Is used successfully also as a catalyst in liquid purification.
Contains 55% active Fe_2O_3; 25% to 30% moisture.

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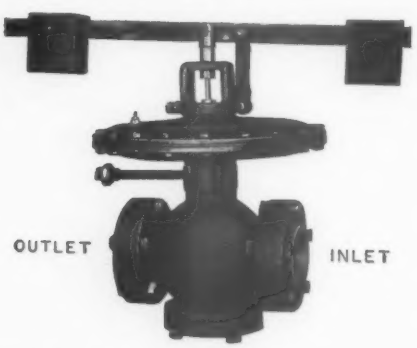

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Effect of Marketing Policies and Refining Methods on Future Availability of Residue Enrichment Oils

By

Arthur E. Pew, Jr.,

Vice President Sun Oil Company, Philadelphia, Pa.

THE PURPOSE of this paper is to present to the Production and Chemical Committees of the American Gas Association, a discussion on the future availability of residue enriching oils. The discussion is limited to the principal factors involved and is not intended to cover any specific details of any particular practice or process. All opinions and conclusions, unless otherwise stated, are those of the author and do not necessarily correspond with those held by the industry in general, or any company with which the author may be associated. The term "residue fuel" refers to all residue oils and includes enrichment oil. Statistically, enrichment oil represents such a small percentage of the total consumption of petroleum products that an analysis of the nation's petroleum supplies related to enrichment oil figures would be similar to comparing a mountain to a mole hill, the demand for such oil amounting to only about six to eight million barrels annually as compared to nearly one billion three hundred million barrels of crude oil annual production at present.

Extent of Use of Petroleum

More than 1,750,000,000 barrels of petroleum are consumed annually throughout the world and of this total the United States consumes about 62 per cent, although its population is but 6.5 per cent of the world's population. Gasoline is the product of largest consumption, fueling nearly 40,000,000 vehicles, as well as planes, tractors, stationary units and other power plants. Low gasoline prices and low cost of motor cars, result in one motor vehicle to each five persons in the United States, compared to a world average of one to each 172 persons.

Second to gasoline in volume of consumption, is fuel oil for power and heat. The world use in recent years is approximately 700,000,000 barrels annually, 60 percent of which is used in the United States. Other products include, lubricating oil, kerosene, and many other useful and necessary derivatives.

From 1918 to 1939, U. S. automobile registrations have risen from 6,100,000 to over 29,000,000 and gasoline consumption from some 80,000,000 barrels in 1918, to over 550,000,000 in 1939. Export demand has risen from 13,650,000 in 1918 to over 44,500,000 in 1939. Fuel oil consumption in United States, including vessels in foreign trade fueled in the United States, amounted to 142,000,000 barrels in 1918 and 462,000,000 in 1939. Prior to 1930, the statistical services of the American Petroleum Institute and the Bureau of Mines did not separate residual fuels from distillate fuels. The 1939 reports show residual fuels amounted to 324,000,000 barrels and household heating oils reached 139,000,000 barrels.

Factors Affecting Availability of Residue Enrichment Oils

The principal factors having a bearing on availability of residue fuels for enrichment purposes are:

(1) **Adequacy of known reserves of crude oil against total consumption of petroleum products.**
(2) **Competition of solid and gaseous fuels**
(3) **Marketing policies of the Petroleum Industry**
(4) **Flexibility of refining processes.**

Ever since 1859, the year it was discovered that petroleum could be produced from the ground by drilling, there have been periodic alarms that the crude oil supply was nearly exhausted. These alarms have approached hysteria several times in recent years, on the part of uninformed alarmists even to the point of threatening legislation declaring the industry a public utility in order to protect the nation's future oil supply. These attacks have been characterized by ignorance and misrepresentation. Actually the outlook is most reassuring.

Crude oil stocks above ground represent the immediately available supply for refineries. This inventory represents up to six months supply, but varies according to conditions depending upon cost and experience. It is simply a working stock, has no bearing on the broad question of future availability of any petroleum product. The above ground crude oil stock is replenished from the underground reserve as required.

The term "proven crude oil reserve" is used to denote that amount of oil estimated as recoverable, by presently known methods, from those oil sands now producing. The term does not cover estimates of potential production from oil sands not yet discovered, but is limited to known and proven fields and areas. It does not include recovery from known sands by methods not now proven. In considering statistical data on crude reserves, it must be kept in mind that due to the dynamic elements of supply shown in the progress of the science of petroleum geology and production practice, large additional resources are being opened for commercial use, which but a few years ago were not available with the methods then in use. As the technical developments progress, the estimated oil recoverable from existing known sands is increased, as well as the probabilities of new discovery.

Proven reserves are primarily underground storage, and are as much a part of the working stock as is the oil in tankage. New discoveries are adding to proven reserves faster than consumption actually uses up the oil produced. From 1900 to 1935 the American Petroleum Institute estimated accumulated discoveries of 28 billion barrels against production of 16 billion barrels or a proven reserve of approximately 12 billion barrels in 1935.

The figures in adjoining table show how the proven reserves have increased as compared to production.

In the past five years over 6 billion barrels have been added to the known reserves despite production, actually, of over five billion barrels. In other words, reserves have increased at more than twice the rate of use over this period.

Presented at the American Gas Association Technical Section Joint Committee Conference of the Production and Chemical Committees, New York, N. Y. May 20-22.

Year	Estimated Reserves U.S.A. Beginning of Year		Actual Production U.S.A. During Year	
1925	5,000,000,000	(1)	763,743,000	(1)
1934	13,300,000,000	(2)	908,065,000	(1)
1935	12,177,000,000	(1)	996,596 000	(1)
1937	13,063,000,000	(1)	1,279,160,000	(1)
1938	15,507,000,000	(1)	1,214,355,000	(1)
1939	17,348,000,000	(1)	1,264,256,000	(1)
1940	18,483,000,000	(1)		

Source: (1) American Petroleum Institute. (2) U. S. Geological Survey.

In the past five years over 6 billion barrels have been added to the known reserves. In 1925 the proven reserves were estimated as sufficient for about seven or eight years and now, 15 years later, they are estimated as good for at least 20 years! All the data available shows that new inventions in the art of discovery and production of crude oil will make it readily possible to maintain our reserves for many years in the future. The American Petroleum Institute in its publication "American Petroleum Industry 1935" estimates that the population of the United States in 1960 will be about 146,000,000 and that there will be, at that time, approximately 32 million passenger automobiles, as opposed to 22 million in 1935, or a total of trucks and cars in 1960 of 37 million against 26 million in 1935. Giving consideration to demand changes for gasoline and other products and changed refining processes and production technique, a peak production requirement with normal conditions of 1,500,000,000 barrels is indicated by 1950. Thus if no new oil fields were discovered subsequent to 1940, or new method of recovery, the data indicates reserves at present more than ample for all domestic demands through 1955 at least. That no new discoveries or methods of recovery, are possible, is incredible—they are today being made in increasing number and there is no reason to believe that over any reasonable period they will be decreased.

It would thus appear that from the standpoint of availability of crude oil, there is no reason to anticipate a shortage of raw material for residue fuel demand.

Competition of Solid and Gaseous Fuels

Fuel oils of the heavy residue type are, in general, end products of the refining operation. Their competition for consumer outlet is largely coal and natural gas. Over the past decade they have developed certain trends in use which, for the present at least, are considered as technically essential. Among such is the modern naval vessel; diesel engine ships and power units; locomotives in areas lacking coal; certain operations of the steel industry such as open-hearth and soaking furnaces. Aside from these uses the market for residue fuels is largely limited by the competition of coal and other fuels. The refiner has a definite ceiling for price which is set by the relative economic value in comparison with solid fuels. On the other hand, the value of residual oils to the refiner is affected by demand for gasoline and other products which by modern processes may be produced from fuel oil. Thus the availability of residue oils for enrichment purposes, as determined by price, will be influenced by the price of competitive fuels and competitive use demand. There has been no period in the industry's history when ample residual oils were unavailable despite the fact that fuel oil yields have been greatly decreased in the past 20 years. Although fuel oil yield has dropped from 53 per cent of a barrel of crude in 1918 to 38 percent in 1939, the total barrels produced in 1939 were 468,000,000 against 174,000,000 in 1918. It might be said that in the event of materially lower prices for solid fuels the conversion of fuel residues into other products would be more profitable to the refiner, but we know of no development which has sufficient probability of greatly reducing the price of solid fuels to make this factor a current one.

Marketing Policies as Affecting Availability of Residue Fuel Oils for Enrichment Purposes

There is no marketing policy known to the author, that would cause any diminution in availability of residue fuel. The industry desires to meet the total demand for petroleum to the fullest extent comparable with economic practice and sound principles of conservation, through maximum recovery from the earth and efficient subsequent handling.

Flexibility of Refining Operations

The evolution of the refining of petroleum from Samuel Kier's five barrel refinery in Pittsburgh (1855) to the modern 150,000 barrel daily capacity refinery, is too long and complicated a story to detail herein. However, a brief outline of the changing technique is necessary.

In the early refineries, crude oil was placed in a container which was heated and the various hydrocarbons successively distilled, gasoline first, kerosene next, then gas oils, then lubricating oils, leaving as a residue heavy fuel oil and asphalt. The refiner and the marketer and the consumer, were thus limited to those products which occurred naturally in the crude petroleum. The demand for motor fuel grew so rapidly in proportion to the demand for other products that the industry was faced with the problem of ever increasing crude runs, with consequent over production of products other than gasoline. This problem was solved by the development of oil cracking processes. These processes involved the subjection of oil fractions heavier than gasoline, to high temperatures and pressures, causing chemical changes which convert the high boiling heavy oils in part into low boiling products within the gasoline boiling ranges. Cracking processes have since 1913 enabled the industry to meet the ever increasing demand for gasoline, and have doubled the gasoline yield from a barrel of crude oil. During the period 1920-39 they have conserved over twelve billion barrels of crude oil which otherwise it would have been necessary to refine to meet the demand for gasoline. The first cracking units in 1913 processed 125 barrels of gas oil a day and recovered 30 to 35 percent of gasoline of low octane; the modern thermal cracking units process as high as 35,000 barrels per day and obtain as high as 68 percent of gasoline, including some 20% of straight run gasoline.

The modern refinery operates continuously. Crude oil is pumped through pipes which are in a furnace heated by fuel oil or gas combustion. The heated oil is "flashed" in a vaporizing chamber and the resultant vapor hydrocarbons separated by fractionating columns into the desired products, normally straight run gasoline, kerosene, household heating oil, lubricating oil and residual fuel. A portion of the primary products, depending upon conditions, are cracked to produce additional gasoline. In many cases the straight run gasoline is cracked or reformed to improve its octane rating. The residual fuel oil is in most cases, used as cracking stock. In general, cracking processes produce gas, gasoline, light fuel oil (other than household oil) and the residual fuels known commercially as heavy fuel.

From this brief description it will be noted that with a given crude oil production the greater the extent to which cracking operations are practiced, the lesser will be the amount of residual oils. However, there is a limit to the extent to which thermal cracking can be used. Processes are and have been available over the past ten years, whereby residual heavy fuels can be run to coke, and heavy fuel production virtually eliminated. However, with normal market conditions this operation is uneconomical, as operating costs are high and investment costs per barrel of gasoline produced are greatly increased.

During the past several years a new type of cracking process has been put into commercial operation. This process is known as catalytic cracking. The only commercial plants using catalytic cracking known to be operating at present are those of Sun Oil and Socony-Vacuum. These plants process some 180,000 barrels of oil daily by the Houdry Catalytic Process. Catalytic cracking makes possible the production of a motor fuel having octane ratings (anti knock characteristics) higher than obtainable by thermal cracking methods. The significance of the process lies, aside from octane improvement, in its ability to produce high yields of gasoline and gas oil from crude oil residues, without the production of cracked residual fuels. If utilized to its full extent the production of fuel oil of the heavy residue type could be virtually eliminated. However, if generally adapted and utilized in this manner to obtain highest gasoline yield, the amount of gasoline which could be produced would far exceed the market demand, were the same amount of crude oil as is now produced refined by this operation. There would be a decrease in the production of fuel oils and kerosene below the market demand. Such a condition is inconceivable, as it would be uneconomic for the industry, in that supply and demand for the products of petroleum would be unbalanced. The elimination of outlets contributing to the total volume of crude oil which can be economically produced in accordance with sound principles of conservation is not believed to have any basis of possibility. The factor of price has an important bearing on the availability of residue enrichment fuels. Without attempting any exact comparison of the economics of gas enrichment values of residue oils compared to other materials, it is obvious that in many cases the present relative cost of competing materials justifies the use of residue oils. Previously it has been pointed out that residue oils may be produced or not produced at the refiner's option through the use of available processes. The decision is largely based upon the economics of the operation. The refiner has no technical process limitation as commercial processes are available to economically dispose of his surplus residues should demand or competitive fuel development restrict or eliminate his residue fuel outlets.

In all probability the yield of residual fuel oils in terms of a barrel of crude will decrease, mainly for the reason that demand for other products will make it economically advisable to utilize the newer processes to a greater extent. However, this trend does not mean necessarily a reduced volume of residual oil for enrichment purposes. Increased crude runs would tend to offset lower fuel yields as in the past. Further, reduced volume of residue fuel does not necessarily mean reduced availability of enrichment oils, inasmuch as enrichment oils need not be of such quality and specifications as are necessary for other fuel uses, and thus tend to be the least desirable charging stocks for oil refining conversion processes.

It would appear that there is no trend in refining technique that offers any serious reduction in residue oils of quality suitable for use as heavy enrichment oil on a competitive economic basis with solid fuels.

In conclusion, it is submitted that providing the use of residue enrichment oils is economic compared to other materials on the basis of a normal price relationship there is no factor indicating the development of a situation creating a shortage of these oils for gas enrichment purposes.

For national defense needs in time of war, the industry is in an excellent position to readily supply such additional quantities as are required, without any spectacular changes being required or any necessity of hysterical reorganization of its present economic and efficient operation.

Industrial Division Meeting New England Gas Association

At this meeting held on May 10th in the University Club, Boston, Robert E. Finnin, Supt. of Apartment-Builder Division of Boston Consolidated Gas Co., presented a sequel to his paper on "The House that Jack Built" which he read at the March meeting.

Space heater applications for the residential and commercial fields were outlined by Herbert H. Skinner.

B. H. Dingley, Sales Supervisor for the Hartford Gas Co., spoke on "The Oil-Fired Central Heating Market for Gas Water Heating."

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AGA Approved TITAN Temperature and Pressure Relief Valve

This device is installed on the hot water outlet in the tank directly in the flow of water. Action, as a result, is unfailing and positive, there being no dead pockets to prevent proper functioning of relief valve.

Pressure relief is obtained through a spring-loaded valve which opens when the pressure reaches a predetermined point. Should the water become overheated to 200° F, a fusible disc melts and lets the water escape thereby preventing a further increase in temperature.

The Titan Relief Valve serves as a coupling connected in the line thereby eliminating the necessity and expense of a tee fitting. To replace fusible disc, it is not necessary to disassemble valves or piping in any way.

Design for application to storage or range boilers. Prevents corrosion, scalding and explosion.

Catalog and full information upon request.

The Titan Valve & Manufacturing Company

Thermostats • Safety Pilots • Relief Valves • Safetystats

9913 Elk Avenue Cleveland, Ohio

The Selling Parade

A Digest of Successful Selling Ideas

By
Charles B. Roth

WHEN MARVIN BROUGHT IN a contract from one of the city's largest businessmen, a cranky old millionaire who always vowed nobody could sell him, Marvin's boss decided to give the boy a testimonial dinner.

I attended. It was a gala affair. The boss hadn't spared any expense, because the profit on the business ran up into the thousands.

George Marvin is in the insurance business, but what he told us about how he sold his prospect might apply to your business just as well, so I am going to repeat it.

He said: "It wasn't a hard sale to make. Indeed, it was easy; almost a push-over—when I found the key. That's all it took—a key. I merely looked until I found that. If you fellows do that you won't have any trouble in selling more.

"As you know, Mr. Handy was a gambler, and still has the instincts. He made his money speculating. He takes chances. He likes chances. I figured as I walked down the hall that if I could make my proposition a sporting proposition, I'd stand a chance; if I talked investment, savings features, and the like, I'd fail.

"So when I got into the office the first thing I said was: 'Mr. Handy, my company and I want to bet that you'll be dead within a year.' 'What's . . . . what's that?' he said. He stood up.

"I repeated quietly: 'I mean every word of it, Mr. Handy. We're willing to lay you good odds that you won't be alive a year from today.'

"No gambler like Handy could resist an appeal like that. He rose to the bait. I got the contract inside of ten minutes' time."

Find the key to open 'em and you can get business from any one of 'em—there's some salesmanship here.

* * * * *

CONDITIONS WERE SERIOUS. The firm was not making sales. What was wrong? The advertising wasn't pulling. The expert called in set to scrutinizing the ads. In a few weeks he rendered his verdict.

"Your sales are falling down," he said, "because you are not telling

a complete story. You partially convince the prospect, but you do not go all the way. I would suggest that we revise the advertising and tell a complete story in every ad. Then we'll see a change."

What he suggested was carried out. And sales went up.

Years after I heard of this rejuvenation job I was called in by the head of a firm whose sales were likewise falling down. I studied the situation, went out with the salesman. And I recommended the same antidote I had learned years before—tell a complete story.

I found that the salesmen were skimming over the top of the story. They were telling a half story, a three-quarters story—but they were always omitting essential points.

Although most salesmen resent very much having to give a memorized sales talk, one of the reasons why many millions of dollars worth of goods have been sold by the standardized presentation is that it does not have the weakness of omitting anything important.

It tells a complete story. And sells.

One firm I know insists that every salesman tell a complete story to every prospect. The talk is not memorized, but it is carefully organized. It falls into seven headings. Each salesman has to include something under all seven each time he talks. Sales have mounted since that plan was introduced.

I STOOD IN THE BACK ROOM of a jewelry store in New York City, talking salesmanship with one of the partners, while the other partner out in the front half was giving an impassioned appeal in behalf of his watches, his rings, his stick pins.

"Just listen to old Max talk!" said the partner in the back. "He's a good old boy, old Max. But he's got one weakness."

"What's that?"

"He don't hype 'em enough," said my informant.

"What do you mean 'hype' 'em?"

That was a new term to me. But in the answer to my question, my source of information let me in on how selling is carried out in certain jewelry auctions.

"Why, when you've got a crowd to a certain point you got to give them a shot in the arm—a hypo. Get it? That's what we call 'hyping.' It means the same as putting on the screws or turning on the heat. You got to do it to sell."

Well, I wonder? I know that these places of business seldom stay in the same location and never become second Tiffany's. I also know that, although closing sales is a definite part of salesmanship, the practice of forcing people to buy what they do not want, through high pressure methods, never wins in the long run.

I like to look on salesmanship as a profession which can get along without shots in the arm—without *hyping* the customer.

* * * * *

WHILE JOHN D. ROCKEFELLER is usually referred to as a great financier, his ability as a salesman is seldom extolled. Yet Mr. Rockefeller was a fine salesman, perhaps one of the greatest of all time.

Here is one side of his life which many persons do not know.

Mr. Rockefeller started selling at 16, sold for years and developed a selling technique which would still work for an ambitious salesman.

"When Mr. Rockefeller started in, although he was just a boy," remarks a recent biographer, "he quickly perceived that there was a great deal of waste in selling. With his clear-thinking mind he sat down and

wrote his three rules for selling. Any salesman today could read and profit by these rules.

"First he would call only on large firms. Let others waste time with the small fry. He would get the big ones.

"Second he would solicit only large orders.

"Third he would see the man at the top.

"Those three rules made him a great salesman. I think they will help any salesman to sell more."

* * * * *

I DOUBT IF YOU EVER read a book called "My Friend Will." And what a shame that is! Every one ought to have a copy, and every salesman ought to make it his bedside book to read especially after one of those days when everything has gone wrong. You know the kind.

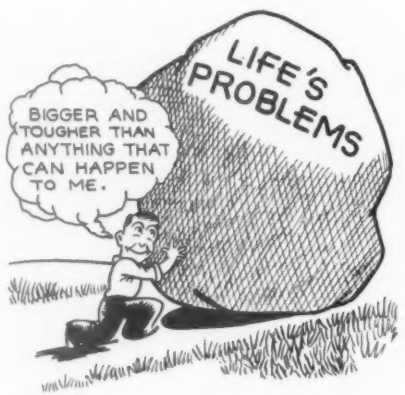
Charles F. Lummis, who died a few years ago out in Los Angeles, wrote the book, which runs only forty-eight or fifty pages in length. Massachusetts-born, Harvard-educated, a fine athlete, Lummis walked from Ohio to California in the 80's when it took more manhood to do the trick than it does today. He went west to become part-owner of a Los Angeles newspaper. He worked entirely too hard and paralysis laid him low. He was all done, washed up, completely through—and he was only 28.

But that Yankee had a hard head, so he moved, paralysis and all, into New Mexico, and for four years fought a fight to win back his health; a fight which seemed hopeless, for didn't every doctor tell him he would never walk again?

But he did walk. He did more than walk. He ran. He climbed mountains. He became an athlete once more. He became an explorer. He began writing books about the Southwest, and before he died, at the age of 68, honors of all kinds came to him.

Whenever I get low in spirits, which happens to all of us occasionally, I find more solace in reading about Lummis' grim fight against odds than in all the other inspirational literature ever run through a printing press.

And the thing I like most about the book was a note he wrote while flat on his back in the hospital in



Santa Fe. He couldn't talk, you know: his vocal chords were paralyzed. He could move his right hand slightly, and with it he wrote the answers to questions of his friends and well-wishers.

One of them asked him how he felt. He wrote: "Just bully, thank you. And bigger and tougher than anything that can happen to me."

If a salesman will only remember that—and be bigger and tougher than anything that can happen to him—he can whip price, depressions, trouble and trials.

Next time you think you're whipped read it: "and bigger and tougher than anything that can happen to me."

* * * * *

THE HEAD OF A BIG BUSINESS was in a reminiscent mood when I called upon him for some information. We fell to talking about his career, which has been honorable, which has been successful. I asked him the reason for his achievement.

"My old boss in Pennsylvania gave me the spark," said he; "the idea upon which I have built every thing I have done. It was his business philosophy that I have followed all my life. He was a peculiar old fellow, but he had all the trade corralled for a radius of a hundred miles. He had only one business obsession."

"What was that?" I asked.

"His customers. He'd say: 'Sam, remember this: Nothing is too good for our customers.' He meant it. It was his business credo. There's no doubt it was the reason for his success and for mine."

"How did you apply it?" I asked.

"Well, in many ways. When I was a young salesman, I'd say, wherever there was a temptation to cut corners and give something not the best: 'Nothing is too good for my customers.' That would check me. Later when I became owner of a business, I faced many temptations to cut corners. That motto always held me back."

"It's still your motto, isn't it?" I asked.

"In every way. It hangs in my office as you can see. It hangs in the sales manager's office. It hangs on the walls of every factory we have. It's the one thing I know about business of which I am positively sure."

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GAS HOLDERS

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RIVETED OR WELDED FABRICATION & ERECTION

TANKS, BINS, FLUES PURIFIERS, WELDINGS

Annual Convention A.G.A.E.M.

Large Attendance at French Lick Springs May 20 to 22

THE Association of Gas Appliance and Equipment Manufacturers held its fifth annual convention in French Lick Springs, Ind., May 20 through the 22nd with an attendance greater than that of any previous convention.

The program was outstanding in that no "outside" speakers were included and discussions centered exclusively around issues vital to the gas appliance industry in particular and the gas industry in general. Participating delegates from all sections of the United States heard men prominent in the gas industry analyze current problems such as industrial relations, appliance development, sales promotion, resource conservation, and other matters of immediate interest and concern to the industry. Much emphasis was given to the extensive progress made by appliance manufacturers during recent years, and there was expressed by the speakers a general optimistic outlook for the future.

Frank H. Adams, president of the Association and vice-president of the Surface Combustion Corp., of Toledo, Ohio, opened the convention at a luncheon reception on Monday, May 20, at which were present the manufacturer members and their families, as well as invited guests. In his address of welcome Mr. Adams said that associations formed, to a great extent, a bulwark for industry, and that problems of individual companies within an industry which vitally concern all can best be solved through the co-operative efforts provided by an association. He declared: "I think we can say it is almost fundamental that no single company can make money or have any real security profit-wise unless the industry as a whole is making money. Welfare in industry is definitely dependent upon each other."

The principal session of the convention was held on the second day with Mr. Adams presiding. The speakers were N. T. Sellman, assistant vice-president of the Consolidated Edison Company of New York and chairman of the American Gas Association's Laboratories Managing Committee; Louis Ruthenburg, president of Servel, Inc. of Evansville, Ind., and W. C. Beckjord, president of the American Gas Association and vice-president of the Columbia Gas and Electric Corp., New York.

FRANK H. ADAMS
President A.G.A.E.M.

Mr. Sellman declared that the gas industry stands out from other industries in that it polices itself. He said that the gas appliance manufacturers and utilities have in the American Gas Association's Laboratory structure a means of self-regulation in all utilization matters that should preclude all necessity for outside interference. He pointed out that if the rate of progress made in the past fifteen years can be maintained, the industry will make gas the "ideal fuel of tomorrow."

N. T. SELLMAN
Chairman A.G.A. Laboratories
Managing Committee

Speaking on "Industrial Relations," Mr. Ruthenburg said that higher wages, shorter hours and production restrictions without increases in efficiency will reduce American living standards. He stated that though the "objective of the more abundant life is universally applauded," methods which are now attempted will not only fail to accomplish the objective but will "of necessity defeat its attainment and inevitably bring about reduced living standards." He said that economic and social improvement in the United States can be continued only in the degree to which the "real" wage of the common man can be increased.

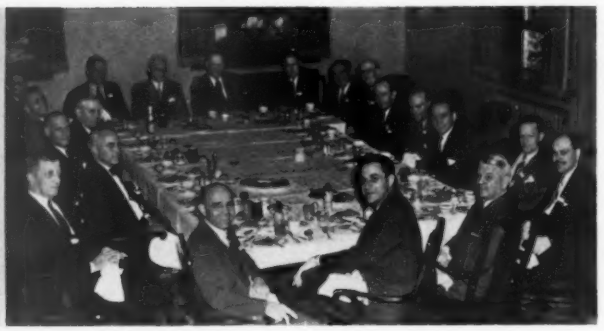
Citing that higher wages and shorter working hours are the yard sticks by which we measure improvement in the worker's condition in this country, he declared: "If we are to think realistically about living standards we must think about real wages —what money will buy, rather than in terms of money wage which is meaningless unless it is interpreted in terms of buying power.

"Any influence which has the effect of restricting productive capacity per unit of man power will restrict our ability to improve the living standard of the average man. Carried far enough, such restrictive influences must necessarily reduce the national living standard."

Mr. Beckjord said that the gas industry needs to tell its story more dramatically and comprehensively to the American public and the logical way is through increased localized newspaper advertising to supplement current national advertising.

He declared: "Too few people are cognizant of the great service rendered our nation by the gas industry. For them to have a full appreciation of this service they need to be told. While we carry on adequate national advertising, we do not penetrate sufficiently into communities as a whole.. This can best be accomplished through increased localized newspaper advertising and promotional campaigns."

He asked for more showmanship in selling and stated that women must today be considered by industry as to their tastes and practical judgment. "Our chief problem is selling.



Left:—Some of the members at the luncheon on the opening day presided over by Frank H. Adams, President of A.G.A.E.M. Right:—Business Luncheon Meeting of Domestic Gas Range Division.

If you cannot sell your product, the rest of the problems don't count," he said.

At an informal session during the convention, George E. Frazer, of Chicago, counsel for the Association of Gas Appliance and Equipment Manufacturers, declared that the American housewives, the greatest purchasing agents of the country, are not speculating either in wheat or in "war babies" on the stock exchange but are investing in their own babies and in home comforts and conveniences.

An important phase of the convention was the series of divisional meetings held on the afternoon of the second day. Promotional plans for the sale of major gas appliances and equipment were disclosed at that time.

The divisions and the chairmen were as follows: Domestic Gas Range, W. E. Derwent, vice-president of the Geo. D. Roper Corp., Rockford, Ill.; Gas Water Heater Division, L. R. Mendelson, president, Hotstream Heater Co., Cleveland, Ohio; Gas House Heating and Air-Conditioning Equipment Division, W. L. Seelbach, secretary, The Forest City Foundries Co., Cleveland, Ohio; Direct Heating Equipment Division, E. C. Adams, president, Adams Brothers Manufacturing Co., Pittsburgh, Pa.; Gas Valve and Fittings Division, R. L. O'Brien, president, Detroit Brass and Malleable Works, Detroit, Mich.; Thermostatic Control and Accessories Division, W. A. Lean, General Sales Manager, The Wilcolator Co., Newark, N. J.; and the Industrial Gas Equipment Division, F. J. Fieser, of Fieser-Lundt, Inc., New York City.

A trio of manufacturers:—Left to right, George G. Gebhart, Sales Manager Hotstream Heater Co., Cleveland; John A. Robertshaw, Vice President and General Manager Robertshaw Thermostat Company, Youngwood, Pa.; W. E. Derwent, Vice President George D. Roper Corporation, Rockford, Ill.

Mr. Frazer declared: "The American housewife may not be keenly interested in solving international problems but she is keen, intelligent and critical in buying furniture and fixtures for her home. The gas appliance industry is squarely meeting that issue by greatly improving all types and kinds of appliances. This is solid and substantial business that outlasts wars and that should outlast even the petty tyrannies of American bureaucrats.

A far-reaching sales promotion program for "CP" (Certified Performance) Gas Ranges to extend into 1941 and 1942 as well as for the remainder of this year was approved during the convention by the "CP" Sales Management Committee of the Association of Gas Appliance and Equipment Manufacturers.

Herbert A. Watson to Direct Range Sales Research

The appointment of Herbert A. Watson as Director of Sales Research for the domestic gas range division of the Association of Gas Appliance and Equipment Manufacturers was recently announced by Frank H. Adams, president of the Association.

Mr. Watson, who was formerly sales promotion manager for the Pennsylvania Power & Light Co., will co-operate with utility companies and retail dealer outlets throughout the United States and Canada in developing creative sales methods and formulating localized sales promotion activities in behalf of the "CP" Gas Range program. These ranges are now being produced and marketed by twenty-six leading appliance manufacturers in the United States and Canada.

Mr. Watson, whose headquarters will be in New York City, has during the past fifteen years been widely active in promoting dealer cooperative programs. He is known throughout the gas industry for his numerous addresses before appliance sales groups.

New Listing of Gas Companies

A revised compilation listing the gas distributing companies operating in the United States has been prepared by the statistical department of the Association of Gas Appliance and Equipment Manufacturers and made available to its membership, it has been announced at the Association's national headquarters, 60 East 42nd Street, New York City.

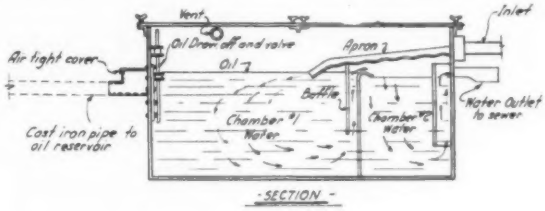
The data, which is presented in booklet form, first summarizes the total number of gas companies operating in each of the forty-eight states and the District of Columbia and the total number of gas customers in each state.

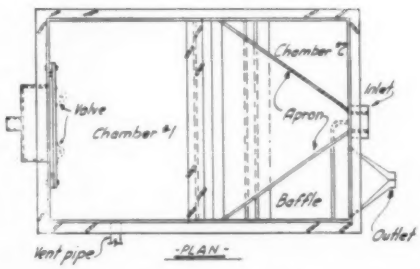
There follows a state by state breakdown listing all gas companies (omitting those serving less than one hundred customers), the location of their principal office, the kind of gas supplied and respective heating value, and the total number of gas customers of each company (as of January 1, 1939).

As a convenience to manufacturers using the new listing, a blank column has been provided alongside each company given.

Separator for Effluents

To satisfy local and federal regulations with respect to stream and harbor water pollution, the Morse patented separator introduces a modern principle which has been successfully applied for the treatment of gas works effluents.





This equipment, furthermore, enables the separation and recovery of tar and oils and is claimed to do two-thirds or more of the work of separation depending on the grade of tar. The final effluent is of sufficient clarity to pass U. S. Government requirements.

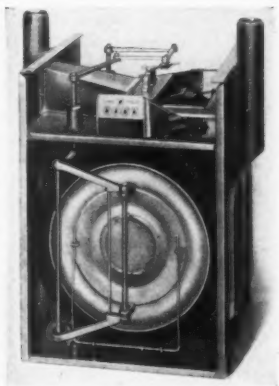
The principle of operation is that of a continuous flow of the effluent over a gradually spreading corrugated riffle or apron into a tank divided by baffles where water is held at constant level. The apron separates the emulsion, placing the lighter oil gently on the surface of the water whence it floats to an overflow valve to be drawn off to an oil reservoir. The heavier constituents are precipitated to the bottom of the first chamber of the tank and drawn off, while the clarified effluent passes under a baffle and over a lipped dividing wall into the second chamber and around a second baffle to the outlet.

Due to the continuous flow principle, relatively large volumes are handled in small areas. The equipment is fabricated from quarter-inch copper bearing steel in several standard sizes with capacities of 35 to 250 gallons per minute. The size of unit to handle 100 gallons a minute, for example, is 6′ x 4′ x 3′.

A sump is usually placed ahead of the separator to catch any grit or foreign material.

For more complete division of the constituents, this type of separator may be used in tandem, or for double capacity, arranged in multiple.

Separation and recovery of oil from aqueous solutions in general industrial operations may also be accomplished, such as in oil plants and refineries and manufacturing plants in many industries.



Type C. Its simple but rugged construction assures efficient, accurate metering of large intermittent or continuous loads.

SUPERIOR GAS METERS

For Sound Values and Continuous Operating Economy

Meters for Domestic and Industrial Use. All Sizes 5B to 60C.

Wet Test and Demonstration Meters — Diaphragms — Service Cleaners — Provers — Meter Repairs

Superior Meters are built to A. G. A. Specifications to provide complete protection against leaks and costly repairs. Write for details and quotations.

SUPERIOR METER COMPANY

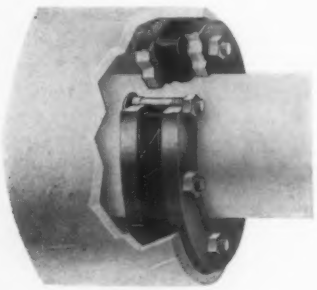
167 — 41st Street Brooklyn, N. Y.

Quality comes first with Superior Meters. They are constructed from the best of materials by an experienced staff of meter mechanics.

New Equipment

Simple, Quick Closures Between Casing and Pipe

The new Dresser Casing Bushing, made by the Dresser Manufacturing Company, Bradford, Pa., consists of two halved steel rings with a rubber-compound gasket bolted between them, this bushing can be easily assembled around pipe and slipped into ends of casing to provide a simple, quick closure. As bolts are tightened, gasket expands outwardly against inside of casing and inwardly against outside of pipe, making a tight seal against both. Casing bushings are used for any line where protective casing is used, as under a railroad track, highway, embankment; or across a swamp, canal, irrigation ditch, or stream.



Dresser Casing Bushing

It is said to seal out dirt, debris, weeds, small animals, and corrosive water from inside of casing —thereby prolonging pipe life because pipe is kept dry and clean. It "floats" pipe-line in casing—vibration and shock from passing trains and traffic (ordinarily relayed to pipe) are absorbed by the resilient rubber gasket. It centers pipe-line in casing—pipe does not rest on bottom of casing where corrosion may develop and coating be scraped off. It is quickly and easily installed by one man using only a wrench.

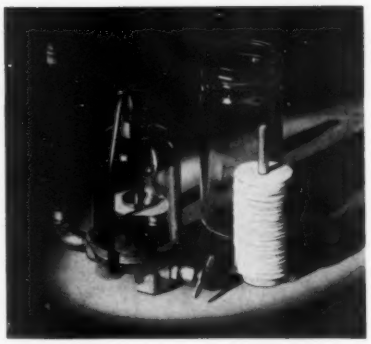
The Style 83 Casing Bushing comes in four types to meet varying field conditions. Types 1 and 2 take care of all ordinary installations where there is no pressure condition between pipe and casing. Types 3 and 4 are designed for installations where such internal pressures may occur, or where line is subject to heavy ground settlement or to strong currents or undertows (on subaqueous lines).

A two-page catalog (form 402) gives complete information, specifications, sizes, and list prices.

New H_2S Tester Uses Prepared Disks

A new and less expensive device for testing gas for H_2S has recently been announced by Connelly Iron Sponge & Governor Company, 3154 So. California Avenue, Chicago, and 200 So. 2nd Street, Elizabeth, N. J.

Known as the Smyly H_2S Tester this instrument uses specially prepared dry, paper test disks, pretreated with the required amount of lead acetate. Extremely sensitive, these disks are said to react to ¼ grain H_2S per 100 cubic feet of gas in a one minute test. Disks are furnished by the manufacturer on a spool, in air-tight glass container. They can be kept indefinitely.



Connelly H_2S Tester

Tests can be made in one minute. Disk is slipped into glass chamber, gas turned on. After test, disk is dated and filed for permanent record. This device is reported to be practical for installing at outlet of each purifying box at the gas plant and in the superintendent's and manager's offices.

An illustrated Bulletin, recently issued by Connelly Iron Sponge & Governor Company gives full details regarding this new Tester. A free copy may be obtained by addressing the company.

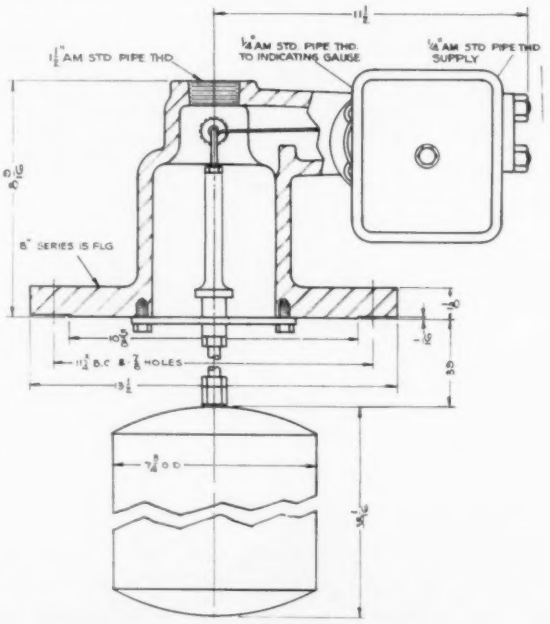
New Fisher Interface Liquid Level Controller

Fisher Governor Company of Marshalltown, Iowa, announced a new level controller designed for maintaining a liquid level when handling two liquids of different specific gravities. This controller holds the level of the heavier or lower liquid at a predetermined point and operates a diaphragm control valve to drain off that liquid as it accumulates in the tank.

The difficulty of level control where the difference between specific gravities of the two liquids is very slight, is a problem that frequently confronts the engineer. This Fisher type 246-P Interface Level-Trol is especially designed to meet this need. It can be furnished with various sizes of floats to meet various conditions of specific gravity.

Pilot valve incorporates throttling range and adjustment and level position adjustment, both of which are readily accessible. This controller has a cast steel housing flanged for mounting on horizontal vessels, and a stainless steel float rod and float.

Other features include Air-flo cooling fin member, pressure tight bearing, bronze body for pilot valve. The operating medium pressure gauges and Fisher filter are standard equipment.

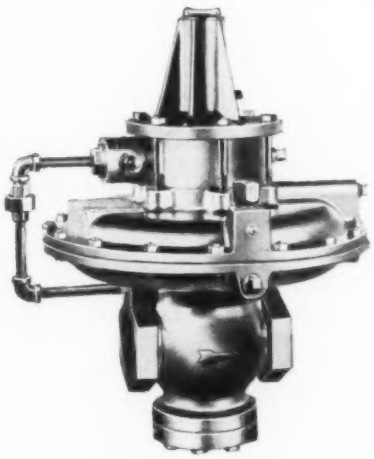


and Appliances

New EMCO Pressure Regulator

The Pittsburgh Equitable Meter Company has rounded out its line of control equipment with the EMCO "1001" Regulator which, as the name implies, is claimed to have a "thousand and one" types of application and to control pressure with a high degree of accuracy for any outlet setting of from 2 ounces up to 20 pounds, having rates of flow well in excess of the capacities normally transmitted through 2 inch piping.

This regulator employs a method of diaphragm loading, not previously available on medium and



"1001" Pressure Regulator.

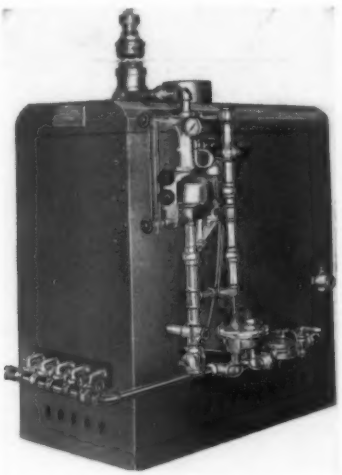
small size regulators. The conventional designs use a spring or weights to oppose the controlling pressure which actuates the operating diaphragm whereas in the "1001" Regulator a pilot loading system for diaphragm control is incorporated which, it is said, assures the movement of the main operating diaphragm with the slightest change in the control pressure. It is claimed that this principle of control assures the maintenance of the desired pressure at a definite and unvarying amount from minimum flow rates to the maximum capacities which can be obtained under the existing pressure conditions, and that the lock-up characteristics are exceptional.

This regulator is designed to provide accurate control for installations having both small and large flow rates, where supply pressures ranging up to 150 pounds must be reduced to 20 pounds or less. In this category are large gas appliances, boiler plants and industrial heat treating furnaces.

It is also well suited to small town border station requirements and may also be employed for district regulator installations where systems are operated at intermediate pressures or at intermediate and low pressure combined.

Hi-Speed Gas Fired Boiler

A high efficiency, low-pressure steam boiler of new design, has just been announced by Anetsberger Brothers, Chicago, Illinois. The manufacturer states that the unit conforms to A.S.M.E. Code specifications in material, workmanship, construction and inspection. Unit has fully automatic water feeder that maintains water at correct level in boiler, also automatic



Low Pressure Steam Boiler.

low water cut-off that snaps gas "OFF" when water level gets too low, and an automatic gas control which turns gas "ON" and "OFF" automatically in accordance with the amount of heat required.

High efficiency results through the completely insulated outer steel shell, and the fire brick insulation that surrounds the fire pot and water tubes.

The front and rear header plates can be removed to clean out dirt, sediment and lime scale from each water tube and mud ring. Large mud wells for accumulation of foreign material can easily be blown out through the large cocks at front and rear of boiler.

Suitable for open line process steam work, as well as closed circuits. For further information write the manufacturers, 3501 Elston Ave., Chicago, Illinois.

The "Dalton" Universal Range

Shown herewith is the Dalton Universal Model 240 made by Cribben & Sexton Company, 700 No. Sacramento Blvd., Chicago. Outstanding features of this popular and modern model are: Six simmer-

The "Dalton" Range

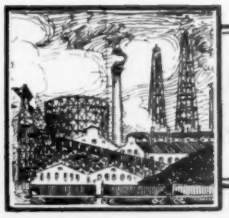
save burners, oven chime heat control, 18" draftless precision bake oven, service drawer, minute minder and elevated in-a-drawer broiler with savory grid.

This model permits broiling and baking in separate compartments without one interfering with the other. Broiler burner is equipped with four ceramic radiant tubes.

This and twenty other "Universal" models including a group of ten CP, are shown in full detail in the Company's 1940 Catalog.

4-Wheel Pipe Cutter

With this Reed pipe cutter you use a back and forth motion through only 1/3 of a complete circle to cut evenly and completely through the pipe. Cuts fast;—no need to break the pipe to finish the job. For bench work or in ditches and other close quarters. Has "razor blade" wheels. Made by Reed Manufacturing Co., Erie, Pa.



News of the Gas Industry

Proposed Consolidation of Five Utility Companies

Consolidation of five public utility companies serving adjacent sections of central and southern Indiana into a single corporation to be named Public Service Company of Indiana, Inc., was proposed in a petition recently filed with the Public Service Commission of Indiana.

The five companies involved in the integration plan are Public Service Company of Indiana, Central Indiana Power Company, Northern Indiana Power Company, Terre Haute Electric Company, Inc., and Dresser Power Corporation.

An application for a report on the proposed plan of consolidation of these companies is now pending before the Securities and Exchange Commission, Washington, D. C. A declaration covering the solicitation of proxies and consents of shareholders to the plan, was included with the application.

If the consolidation should be consummated, the petition declares, the new corporation will have a capitalization of $111,064,917, distributed as follows:

1,030,873 6/10 shares of $25 common stock valued at $25,771,840; 377,991 16/20 shares of $50 par value 5 per cent preferred stock, or $18,899,590; and a long term debt totaling $66,393,487 of which $56,072,000 will be in mortgage bonds and $10,321,487 in serial notes and debentures.

A pro forma income statement for the new corporation for the year ended March 31, 1940 shows that it would have had a net income of $6.73 per share on the $50 preferred stock, and $1.55 per share on the new common stock.

The shares of the new corporation are to be dated October 1, 1940, and the preferred stock will bear cumulative annual dividends of $2.50 per share from that date. The first dividend would be payable January 1, 1941.

The consolidation plan provides that existing shares of the companies to be consolidated, (except shares owned by constituent corporations, which shares shall be cancelled), including all accrued and unpaid dividends, shall be converted into shares of the new corporation.

The Trustee of Midland United Company benefically owns all of the present outstanding common capital stock of Public Service Company of Indiana, Central Indiana Power Company and Terre Haute Electric Company, Inc. (except 161,451 shares of the common stock of Public Service Company which stock is owned by Central Indiana Power and will be cancelled by the consolidation), 11,937 4/6 shares of the $6 cumulative prior preferred stock of Public Service Company, and 1,468 shares of the preferred stock of Terre Haute Electric. It also owns or controls interest bearing obligations and other securities, which, with accrued interest to the effective date of consolidation, have an estimated fair value of $1,553,000.

Under the proposed plan, the Trustee of Midland United Company would sell these securities to the new corporation at their estimated fair value, and take in payment therefor shares of common stock of the new corporation on the basis of $25 per share; and also would subscribe for an additional 80,000 shares of common stock of the new corporation at a price, payable in cash, of $25 per share, or an aggregate amount of $2,000,000.

CONVENTION CALENDAR

June

3 *Pennsylvania Natural Gas Men's Assn.*, Pittsburgh Field Club, Pittsburgh.

7 *New England Gas Assn.* Spring Meeting Operating Division, Hotel Viking, Newport, R. I.

27-28 *Liquefied Petroleum Gas Assn.*, Pacific Coast Section, Santa Barbara, Calif.

July

3-5 *Canadian Gas Association.* Annual Convention, Jasper Park Lodge, Alberta, Canada. Northwest Conference of Pacific Gas Association will hold joint sessions.

8-10 *Michigan Gas Assn.*, Grand Hotel, Mackinac Island, Michigan.

August

26-29 *Appalachian Gas Measurement Short Course*, Morgantown, W. Va.

September

18-20 *Pacific Coast Gas Assn.* Annual Convention, Hotel del Coronado, Coronado, Calif.

26-27 *Empire State Gas & Electric Assn.*, Annual Convention, Westchester Country Club, Rye, N. Y.

October

7-11 *American Gas Assn.* Twenty-second annual convention, Atlantic City, N. J.

A.G.A. Meritorious Service Medal and Charles A. Munroe Award

The gas industry is again being reminded by Alexander Forward, Managing Director of the American Gas Association, of its Meritorious Service Medal. This award is supported by an endowment in memory of Mr. Walter R. Addicks, late Senior Vice-President of the then Consolidated Gas Company of New York.

Consisting of a beautiful gold medal and button and a certificate, this Award is the gas industry's official recognition of the gas company employee who has performed the most meritorious deed during the year. It is awarded for meritorious and conspicuous judgment, intelligence or bravery in saving human life either in the plant or works of any gas undertaking or having to do with the handling of the materials of manufacture or of the products manufactured or distributed.

It is available to an employee of any manufactured gas company or natural gas company or manufacturer company member of the Association, domestic or foreign. It may be an employee of your company performed an act of heroism and self-sacrifice in saving life and property which would make him eligible for consideration for the 1940 American Gas Association Meritorious Service Medal.

To qualify for the Medal, to be presented at the Convention of the Association in Atlantic City next October, the deed must have been performed during the period beginning July 1, 1939, and ending June, 1940. Applications for the 1940 Award should be sent to Association Headquarters on or before August 1, 1940. Forms for the application will be furnished upon request of Association Headquarters.

Munroe Award

At each of its annual conventions since 1929 the American Gas Association has honored an individual deemed to have made the outstanding contribution toward the advancement of the gas industry. That honor is the Charles A. Munroe Award consisting of a substantial sum of money and a permanent certificate.

The accomplishment may be along any line. For instance, the first award went to Nils T. Sellman, of New York, for his work in connection with the development and marketing of the gas refrigerator while last year James F. Pollard, of Seattle, received the Munroe Award for having provided the spark which made the eminently successful national advertising campaign possible.

Managing Director Alexander Forward of the Association is inviting applications

for the 1940 Munroe Award which may be filed by an individual or company member on or before August 1. The applications will be judged by a committee of three prominent gas company executives to be appointed by President Walter C. Peckjord, and will be passed on by the Executive Board. The presentation of the Award will be made at the Association's convention at Atlantic City next October.

Pennsylvania Natural Gas Men's Assn.

The May dinner meeting of the Pennsylvania Natural Gas Men's Association was held at the Pittsburgh Athletic Association, on May 20. The program was based on a symposium on the topic, "Do We Really Want the Industrial Load?"

The subject was presented briefly from the following angles:

The Relative Volume and Revenue of Present Industrial Load—C. B. Mershon, Manufacturers' Light & Heat Company.

What Are We Doing to Aid the Industrial Customer? (From the customer's point of view.)—Irving D. Ross, Peoples Natural Gas Company.

Industrial Load Building is a Long Range Process. The Importance of Sales Promotion—J. P. Brosius, Equitable Gas Company.

Mr. Brosius has pointed out that statistics for 1939 indicate that the Industrial and Commercial gas sales "represent 50.7% of the total volume and 32.3% of the total revenue of our business."

The annual meeting and golf party was scheduled for Monday, June 3, 1940, at the Pittsburgh Field Club.

Mid-West Gas Ass'n Meeting

The Mid-West Gas Association, held at Lincoln, Nebr., April 15-17 had an attendance of over 300. The Association extended its membership to three additional states—Montana, Wyoming and Colorado.

New officers elected for 1940-41 are President C. B. Dushane, Jr., American Meter Co., Chicago, Ill., first vice president, H. S. Peckham, Northern States Power Co., St. Paul, Minn., second vice president, H. K. Wrench, Minneapolis Gas Light Co., Minneapolis, Minn., Secretary-Treasurer (re-elected) R. B. Searing, Sioux City Gas and Electric Co., Sioux City, Ia. Next year's convention will be held at Minneapolis, Minn.

Baltimore Consolidated Gas Uses Screen Playlets in Sales Campaign

Hot-O-Matic water heater and Electrolux refrigerator playlets will be used in the 169-week theatre screen advertising campaign of the Consolidated Gas Electric Light and Power Co., Baltimore. The Electrolux playlets have been completed for distribution only recently, and their display in Baltimore will be among the first showings to the public.

The campaign is limited at present to theatres in Baltimore. Eighteen theatres will display 72 weeks of water heater playlets, and 13 will screen 97 weeks of refrigerator ads.

R. M. Conner Honored at Banquet Upon Completion of 15 Years as Laboratories Director

The employees of the American Gas Association Testing Laboratories staged a surprise banquet for their Director, Mr. R. M. Conner, at the Statler Hotel in Cleveland on May 3, 1940, in honor of his service in organizing and directing the Laboratories for 15 years. Believing he was attending a banquet to celebrate the close of a successful bowling season, Mr. Conner was unaware of the nature of the occasion until it was announced by the toastmaster following the dinner.

R. M. Conner

Mr. Conner was presented with a beautiful bronze desk set by the Laboratories staff, including an 8-day clock and barometer mounted on a base with 2 life-time pens, desk pad, calendar, ash tray, etc., along with a leather bound scroll signed by all members of the staff and carrying the inscription:

"We, the employees of the American Gas Association Testing Laboratories wish to take this means of paying tribute to you who organized and have continuously directed our Laboratories since their inception fifteen years ago today. We add our respect and admiration to that of the gas industry generally, for your ability and the outstanding contribution you have made to our industry and to the betterment of the public service it renders."

In order to prevent Mr. Conner from knowing about the plans in advance, only a few outside of the Laboratories' employees were told of the arrangements being made. Mr. Walter C. Beckjord, President, and Major Alexander Forward, Managing Director of the Association, unable to be present, sent congratulatory messages. Mr. Frank H. Adams, President of the Association of Gas Appliance and Equipment Manufacturers, Mr. Kurwin R. Boyes, Secretary of the American Gas Association, and Eugene D. Milener, Secretary of the Industrial Gas Section of the Association, attending the banquet as guests of the Laboratories' staff, complimented Mr. Conner very highly in their addresses on his accomplishments of the last 15 years, as head of the Testing Laboratories.

Pacific Coast Gas Association

Pacific Coast Gas Association having reached the mid-point in the year with two successful mid-year conferences completed is now preparing for its July meeting with the Canadian Gas Association at Jasper Park and its annual convention at Coronado September 18-19-20.

The Pacific Coast men taking part in the Canadian Gas Association program include Mr. F. M. Banks, Vice President of the Southern California Gas Company; Mr. LeRoy M. Edwards, President of the Industrial Fuel Supply Company; Mr. R. E. Fisher, Vice President of Pacific Gas and Electric Company; Mr. A. F. Rice, Manager of Occidental Stove Company; and Mr. Jas. F. Pollard, President of the Seattle Gas Company.

A large number of Pacific Coast Gas Association members are planning to make the trip to Jasper Park for this meeting, which takes place July 3-4-5.

Mr. A. E. Holloway, President of the Pacific Coast Gas Association, has appointed Mr. D. H. Perkins, General Superintendent of the San Diego Consolidated Gas and Electric Company, as general chairman of the Coronado convention.

All convention and business meetings will be held at the Hotel Del Coronado.

As is customary with Pacific Coast Gas Association conventions, the program will include a review of the progress made during the past year, and planning sessions to guide the work of the Association in the immediate future. An innovation this year will be an evening program put on by the Manufacturers' Section during which the manufacturers will be given every opportunity to dramatize their problems and poke a little fun at the foibles of utility purchasing agents and sales executives.

Pacific Coast Liquefied Petroleum Gas Exposition and June Meeting

Sponsored by the Pacific Coast Section, Liquefied Petroleum Gas Association, the First Annual Pacific Coast Liquefied Petroleum Gas Exposition will be a feature of that association's two day meeting scheduled for June 27th and 28th at the Municipal Auditorium, Santa Barbara, California.

According to C. L. Parkhill, chairman of the Pacific Coast Section, interest in the meeting and exposition has crossed sectional boundaries and is assuming national significance both from the standpoint of exhibits and attendance. While exhibit privilege is limited to association members, the meeting and attendance at the exposition is open to all interested parties. Since the Liquefied Petroleum Gas industry, its growth and future is becoming increasingly important to such allied industries as Petroleum, Natural Gas and

Natural Gasoline a particular invitation is extended to men in these industries to attend. The exposition will feature a complete cross-section of the industry's latest equipment, domestic appliance and fuel consuming applications. In addition, the meeting will feature a strong program with the following papers presented: Thursday, June 27th, "The Probable New California Industrial Accident Commission Code," "Successful Appliance Sales, Service and Installation Methods," and "Transportation, Storage and Handling of Butane." Friday, June 28th, "Problems of Pumping L. P. G.," "The American Gas Association Testing Laboratories and Their Relation to the L. P. G. Industry," "Building Fuel Load Through Space Heater, Water Heater, Refrigerator and Range Sales."

John Rogers Joins Cooper-Bessemer James W. Reed Goes to New York

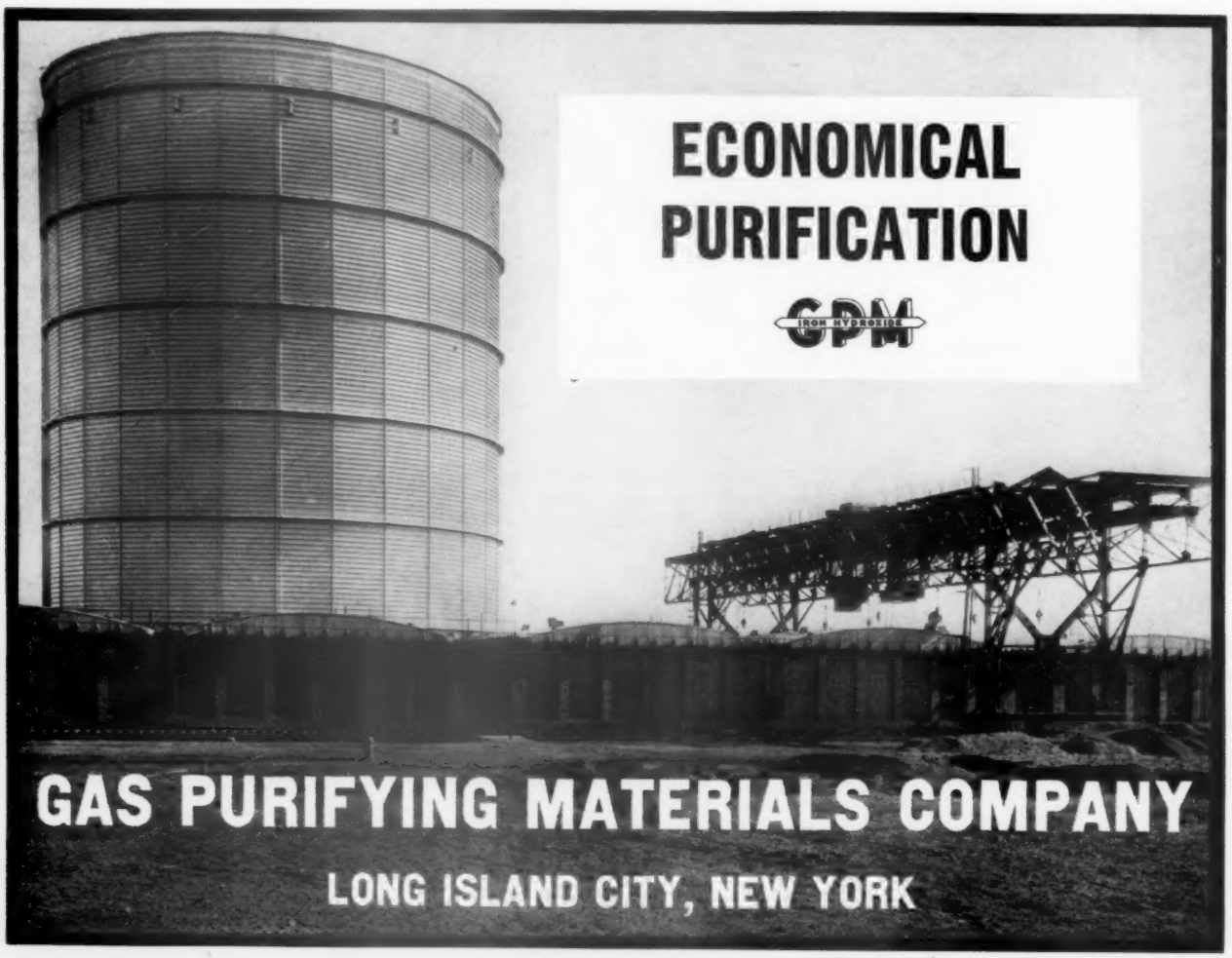
The Cooper-Bessemer Corporation, maker of gas and Diesel engines and compressor units, has recently announced that Mr. John Rogers has joined its organization in a sales engineering capacity and will soon take up his duties as Pacific coast manager at the company's Los Angeles offices. Simultaneously, the transfer of Mr. J. W. Reed from the Los Angeles to the New York offices has become effective, with Mr. Reed being appointed Atlantic coast manager of the corporation's Gas Engine and Compressor division.

Mr. Reed joined The Cooper-Bessemer Corporation in 1924 and was made Pacific coast sales manager in 1929. He goes to New York with a wide experience in the application of the company's engines and compressors to petroleum, natural gas, and general industries power uses. In his new position Mr. Reed will be in charge of gas engine and compressor equipment sales in the eastern seaboard area.

John Rogers

J. W. Reed

Mr. Rogers' territory in his new affiliation will include the entire west coast. His headquarters will be the already well-established Los Angeles offices of The Cooper-Bessemer Corporation.



Fifth Annual Convention—Gas Meters Association of Florida and South Georgia

The Annual Meeting of the Gas Meters Association of Florida & South Georgia, an association composed of representatives of the manufactured gas companies in Florida and South Georgia, was held at Hollywood, Fla., April 21-23. The program included general sessions, residential, commercial and technical sessions.

Principal speakers at general sessions were Miss Jessie McQueen, Home Service Counsellor, American Gas Association on "What's Next in Home Service"; Carl Sorby, Sales Promotion Manager, Geo. D. Roper Corp., on CP Range Promotion; Ralph W. Carney, Sales Manager, Coleman Lamp & Stove Co., on "Speaking of Sales"; H. Carl Wolf, President, Atlanta Gas Light Company, on "National Advertising and Local Tie-In." At the Commercial Section were H. C. Erhard, Standard Gas Equipment Corp. on "Hotel and Restaurant Equipment"; Henry Birchall, People's Water & Gas Co., on "Small Appliances; John Spicer Kelsey, Fenton Kelsey Co., on "Commercial Advertising and Publicity"; R. S. Chapman, Atlanta Gas Light Co., on "Selling Commercial Equipment Through the Dealer"; Jean DeLaunay, First Chef, Good Hotel, Miami Beach, on "Hotel Kitchen Operation."

The "All Purpose Range" presentation on the commercial program was a comedy skit built around the interview of a commercial salesman with the proprietor of a small lunch stand. The "All-Purpose Range" was equipped with every possible gadget from a closet in which to keep brooms and mops to an automatic lighter which exploded in the operator's face. The "Radio Dramatization — Gas Men at Work," originally scheduled for the second day commercial program, was presented at the second day's noon-luncheon. It was a simulated "Radio Broadcast" presented in the style of the "March of Time" and relating the story of the recent unusual winter weather in Florida with its effect on the operator of a small gas company.

The following new officers were elected for the ensuing term: President, C. D. Littlefield, Peoples Water & Gas Company, Miami Beach, Florida; Vice-President, A. H. Bruning, Florida Public Service Company, Orlando, Florida; Secretary-Treasurer, H. Stuart Johnston, Florida Public Service Company, Orlando, Florida. There were 169 registered.

From left to right: C. D. Littlefield, Peoples Water & Gas Company, Miami Beach, the newly elected president of the association; Ralph W. Carney, sales manager, Coleman Lamp & Stove Company; and H. Carl Wolf, president, Atlanta Gas Light Company.

Requests Investigation of Gas Rates

The Tampa Gas Co., Tampa, Fla., has notified the Tampa utility board that it would welcome an investigation of gas rates, and urged that some nationally-known engineering firm make such investigation. In his letter to the board, Roscoe Nettles, president and general manager of the gas company urged the investigation and stated that "after such investigation is made, we will apply whatever rates, rules and regulations that are put into effect to the entire territory we serve."

To Improve St. Petersburg, Fla. Distribution System

Expenditure of approximately $473,000 for improvements at the city gas plant and on the distribution system at St. Petersburg, Fla., has been recommended to the city council by City Manager G. V. Leland. The improvements have been recommended in a report made to the manager by utilities director James Gibson after a study of the entire situation, and are designed to correct low pressure conditions which developed during the unusual cold weather of the past winter.

Brooklyn Union Range Sales Up 62% in April

Further evidence of the mounting popularity of the improved and streamlined gas appliances now on the market is contained in the latest sales report issued by Brooklyn Union Gas Co., Brooklyn, N. Y.

During April, customers purchased a total of 4,307 domestic appliances, compared to 3,145 in the same month last year. The number represented an increase of 27 per cent over the 1939 total.

Ranges led the advance, their sales being higher by 64 per cent than a year ago. Refrigerator sales were up 11 per cent.

The month's deliveries to customers included 1,969 refrigerators, 1,098 ranges, 317 water heaters and 131 house heaters.

The dollar value of the appliances sold was $344,765.46. This represented an increase of 7.5 per cent over that for April, 1939. Since the first of the year delivered sales have aggregated $808,518.82.

A Century of Worthington

Recording the history, pioneering, expansion and development to date of the products of Worthington Pump and Machinery Corporation, Harrison, N. J., a finely prepared and illustrated 80 page 9 x 12 volume has been issued by the Company to commemorate a century of service to industry.

In addition to being an outstanding example of the printer's art, it covers with much detail and a host of illustrations of the Company's products from the small direct acting steam pump of 1840 through to the great modern pumping, compressing and power units of the present decade.

These include among many units, Worthington-Carbondale ammonia compressors for air conditioning, centrifugal and reciprocating oil pumps, gas engine compressors for pipe lines and distribution service and convertible gas-Diesel engines.

The foreign activities of the Company are also dwelt upon. The closing paragraph is significant:—"Facing its second century, Worthington, mindful of its great heritage and the attendant responsibilities, looks forward with confidence . . . earnestly resolved to maintain the lofty traditions of its founder, and to further extend the horizons of its influence."

Meleney Co. Represents Northern Equipment Co.

Northern Equipment Company, Erie, Pennsylvania, announce the appointment of Meleney Engineering Company, 709 Mills Building, Washington, D. C., as district representative for Copes Feed Water Regulators, Differential Valves, Pump Governors, Desuperheaters, Pressure Reducing Valves and allied equipment.

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Canadian Gas Association

Tentative Program of the Convention to be Held at Jasper Park Lodge, Alberta July 3 to 5

Community Development—by F. M. Banks, Vice-President, Southern California Gas Company, Los Angeles, California.

The Fundamental Soundness and Stability of the Gas Industry—by Major T. J. Strickler, Vice-President and General Manager, Kansas City Gas Company, Kansas City, Mo.

Marketing of Coke in Vancouver and Vicinity—by Hugh Grace, Chief Coke Salesman, British Columbia Electric Ry. Co., Limited, Vancouver, B. C.

National Advertising—by James F. Pollard, President, Seattle Gas Company, Seattle, Wash.

Some Experiences with the Curran-Knowles Installation at Owen Sound—by J. R. McLinden, Superintendent, Public Utilities Commission, Owen Sound, Ontario.

Is Our Gas Industry Utilizing Its Greatest Asset?—by S. B. Severson, Vice-President, Dominion Natural Gas Company, Ltd., Buffalo, N. Y.

Dreams of the Future for Gas Manufacture—by George R. Horning, General Superintendent, Seattle Gas Company, Seattle, Washington.

The Change-over to Heavy Oil Carburetted Blue Gas in Ottawa—by Otto B. Phillips, Superintendent, Gas Plant, Ottawa Gas Company, Ottawa, Ontario.

Geochemical Prospecting — A New Method of Gas and Oil Exploration—by S. E. Slipper, Consulting Geologist, Calgary, Alberta.

The Preparation of Turner Valley Gas for Market—by H. McM. Stevens-Guille, Plant Superintendent, Royalite Oil Company, Calgary, Alta.

The Firing of Natural Gas for Steam Generation—by H. A. Atwater, Chief Engineer, Combustion Equipment Company, Kansas City, Mo.

Pipe Line River Crossings—by LeRoy M. Edwards, President and General Manager, Industrial Fuel Supply Company, Los Angeles, California.

The Family Budget and Gas Appliances—by E. Holt Gurney, President, Gurney Foundry Co., Ltd., Toronto, Ont.

The Testing Laboratories Expand for Greater Service—by R. M. Conner, Director, Testing Laboratories, American Gas Association, Cleveland, Ohio.

What Are the Women Thinking?—by W. C. Mainwaring, General Sales Manager, British Columbia Electric Railway Co., Ltd., Vancouver, British Columbia.

How to Win the Sweepstakes—by R. S. Agee, Sales Promotion Manager, Range Division, Association of Gas Appliance and Equipment Manufacturers, New York City, N. Y.

Appliance Sales—by A. F. Rice, Manager, Occidental Stove Company, San Francisco, California.

There will also be the Sales Round Table, to be conducted by Mr. W. C. Mainwaring, General Sales Manager, B. C. Electric Ry. Co., Ltd., Vancouver, at which a number of prominent Sales Executives will take part.

Koepke Is Sales Engineer with Clark Bros. Co., Inc.

Announcement was recently made by Clark Bros. Co., Inc., of Olean, N. Y., of the appointment of Boyd F. Koepke as Sales Engineer, with headquarters at the company's branch office at Tulsa. Mr. Koepke will serve the company throughout the Midcontinent area.

Mr. Koepke received a B.S. Degree at the University of Oklahoma, in 1921, where he specialized in Petroleum Engineering and Chemistry. He spent several years in refinery research work with the Barnsdall Refining Corporation, at Barnsdall, Oklahoma, then went with the Pittsburgh Testing Laboratory, at Pittsburgh, Pa., taking charge of their Petroleum Section. In 1926 he accepted a sales engineering position with the Leeds & Northrup Company, of Philadelphia, representing them first in the Northeastern and New England States, later in the North Central States, and later still in the Midcontinent, where he opened their Midcontinent district office. His last position before joining the Clark organization was with the Refinery Division of the Frick-Reid Supply Corporation, at Houston, as Refinery Sales Engineer.

Photo Alvin C. Krupnick, Tulsa

Boyd F. Koepke

Mr. Koepke will serve Clark Bros. Company throughout the Midcontinent area.

To Study Operation of Municipal Gas Plant

The City of Belleville, Ont., which operates its own artificial gas plant will carry on for another year without making an expenditure of $8,000 for new retorts. The plant which has cost the city council, its present operators, a loss of $5,000 per year for the past few years, may be handed over to the Public Utilities Commission in the near future. The council decided that the operation of the plant be studied carefully with a view to making it more profitable and efficient and that the question be placed before the ratepayers in easily understood language.

New Purifying Plant at Aylmer, Ont.

General contract for the erection of a large gas purification plant for the Union Gas Company of Canada, Ltd., of Aylmer, Ont., was recently awarded to Robertson Construction and Engineering Co., Niagara Falls, Ont. The building will be one-story and measure 60 by 40 feet, steel frame, tile walls. The purifying plant will treat the gas from the wells that the Union Company has struck in the Malahide fields and that the purified product will be piped to the city of London. The company will begin in the near future to lay mains to London, a considerable distance from the wells.

British "Gas Journal" Calendar and Directory

The 1940 edition of this publication covers as usual a complete directory of gas undertakings including list of officials, located in the United Kingdom and other countries of the British Commonwealth. The Handbook section includes about 100 pages on gas works practice with general information and tables for daily reference in the gas and allied industries.

Copies are distributed free to regular subscribers and to firms whose advertisements appear in the volume. The price to others is 21 shillings post free. Published by Walter King, Ltd., 11 Bolt Court, Fleet St., London, E. C. 4.

Register of the Gas Industry for 1940 (British)

This volume of some 400 pages includes a directory section of gas associations, operating companies and officials including Great Britain, Ireland and British possessions.

The Technical Section covers gas plant construction and operation in some detail together with distribution and utilization. Many useful tables and graphs are included as well as descriptive matter.

Published by Hallows & Slaughter, Ltd., 29 Grove Road, Leighton Buzzard, Beds, England.

Story of Champion Coal

Pittsburgh Coal Co., Oliver Bldg., Pittsburgh, has issued a colorful 28-page brochure telling the story of Champion Coal.

Starting with its origin in the swamp forests of the carboniferous age, it carries the reader to the discovery and mining of the "Pittsburgh Seam," first opened in 1760.

Mining methods, preparation and grades are discussed in some detail, as well as laboratory tests and shipping facilities. Numerous illustrations serve to stimulate the reader's interest.

Copies may be had by writing the Company, or any of its sales offices.

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Paint Engineers Inc.

Paint Engineers, Inc., is a new corporation located at Hawthorne, New Jersey. The company is headed by Mr. Robert E. Mitchell, President, whose experience in the paint industry extends over a period of 20 years. For the past twelve years he has been Manager of the Paint Sales Division of the Joseph Dixon Crucible Company, and, for eight years prior to this period, associated with Valentine & Company, first as Field Sales Manager, and later as Advertising and Sales Promotion Manager.

Paint Engineers, Inc., are not only manufacturers of paints and varnishes, but also serve in the capacity of consultants, to users of paints, in the preparation of paint specifications and paint systems.

Copper & Brass Research Assn.

It is announced under date of May 28th that the Copper and Brass Mill Products Assn. has been merged with the Copper & Brass Research Assn. with offices at 420 Lexington Ave., New York. T. E. Veltfort is manager and Bertram B. Caddle continues as secretary.

Gas Heaters. Catalog G-40 issued by Ohio Foundry & Mfg. Co., Steubenville, Ohio, describes with many illustrations their radiant heaters, gas logs, gas grates and floor furnaces.

MEET "CHIEF FLEETWELD"

Until the evening of May 22nd, he was just A. F. Davis, Vice President and Secretary of The Lincoln Electric Company, Cleveland, Ohio, but that night at eight o'clock, he became "Chief Fleetweld" of the Osage Indian Tribe.

It all happened during the International Petroleum Exposition at Tulsa, Oklahoma.

Mr. Davis was presented with a tomahawk and a head gear of the Osage Indian tribe, thereby being inducted into the Welding Forum as fitting honor for his long service to the welding industry. The tomahawk was referred to as "the first chipping hammer", the only difference between it and the modern chipping hammer being that the latter is used to chip welds instead of skulls!

"Jim" Scott with Mueller Co.

The appointment of James R. Scott, as Assistant to the President, has been announced by H. P. Mueller, President of the L. J. Mueller Furnace Co., Milwaukee.

32nd Annual Meeting of the Pennsylvania Gas Association

This meeting was held at Skytop, Pa., May 14, 15 and 16th. L. B. Eichengreen, vice-president, Philadelphia Electric Company, as president of the Pennsylvania Gas Association, opened the convention Tuesday evening with his presidential address.

"Although domestic sales and revenue," he said, "have been decreasing over a period of years we appear to be reaching an upturn. However, since 1933 these losses in

LEON B. EICHENGREEN

domestic sales and revenue have been more than compensated for by substantial increases in the house heating, industrial and commercial business. We have at the present time more customers than ever before in our history."

The first business session, Wednesday, opened with 500 delegates present from all sections of Pennsylvania. The first paper was presented by Paul A. Fusselman, general superintendent of gas transmission and distribution, Philadelphia Electric Company, who discussed "Effect of Pressure Reduction on Unaccounted for Gas." Reduction in the constant loss of gas represents a definite operating economy, he said, and the best plan to overcome this is by supplying segregated high pressure distribution systems through pounds-to-pounds regulator stations.

The bacterial corrosion of pipe lines, while comparatively new to this country, has been a big problem in other sections of the world and is costing American utilities sending gas, oil and other things through pipes tremendous losses. This matter was discussed by Paul Ganser, Philadelphia Electric Company, in a paper on "Pipe Line Corrosion Caused by Anaerobic Bacteria." These so-called sulphate-reducing bacteria are found in pipe lines running through swamps, in stream crossings and soils free from oxygen. The only known solution, he said, is to box the pipe in pitch or other similar compound.

Discussing "The Importance of Cost Control and Sales Promotion Work," Ronald A. Maloney, Bridgeport Gas Light Company, Bridgeport, Conn., said that this is important but more difficult to achieve because in selling and advertising the utilities are dealing in human emotions. Newspaper effectiveness, he stated, can be increased if careful attention is given to the "best" days for gas appliance advertising. Program advertising, he added, is largely a waste of money.

G. F. Tyler, Philadelphia Electric Company, in a paper on "Preparing Gas Properties for Flood and Hurricane Conditions," outlined a plan to be followed in surveying a gas property to determine its vulnerability to flood and hurricane, citing specific difficulties and recommending certain precautionary measures.

H. E. Cliff, Public Service Electric & Gas Company, Newark, N. J., talked on "Customer Relations Angle of the Customers' Accounting Department." He said that as long as companies have a business dealing with a large number of customers, there will always be customers who do not exactly like every point of contact with the company. It is the business of the gas company to look upon these complaints as opportunities to establish better relations with customers, to correct mistakes and to do everything to make the service first-class in every respect.

Optimism was the keynote of the address of Walter B. Beckjord, president of the American Gas Association, at the evening meeting. Mr. Beckjord said in part:

"There has not been enough money spent on improving our utilization equipment and facilities, and adapting our product to meet modern conditions in the home. Any business that can invest nearly $5 for each $1 of gross and survive this far can afford to spend over 5 per cent of its gross on new business effort and more than 1 per cent of its gross on advertising. An investment in selling our business will pay bigger returns every time than some of the monuments we have erected in misplaced office buildings and outmoded methods of production.

The closing session on the 16th was devoted to customer and employee relations and new business. Because of the fact that these relations are so often with women customers the earlier part of the discussion was taken by two women employees, Helen Farrell, of the

M. A. BOYLAN
President 1940-41

Public Service Electric & Gas Company, Newark, N. J., and Beatrice Cole Wagner, of the Philadelphia Gas Works Company. Then followed a round table discussion covering the selection, training, performance and measurement of effectiveness of employees engaged in customer-contact work. Questions on these subjects were obtained from delegates present and the discussion that followed was by the Customer and Employee Relations Committee.

N. B. Bertolette, president of the Hartford Gas Company, Hartford, Conn., had as his subject, "Gas Sales Promotion in a Highly Competitive Territory." Among the major efforts he cited the introduction of promotional and objective rates and the publicizing of them and institutional and promotional advertising.

Officers elected for 1940-1941: President, M. A. Boylan, Scranton; Vice Presidents, P. T. Dashiell, Philadelphia; F. W. Lesley, York; H. H. Ganser, Norristown; Secretary, Wm. Naile, Lebanon; Treasurer, W. G. Sterrett, Jenkintown.

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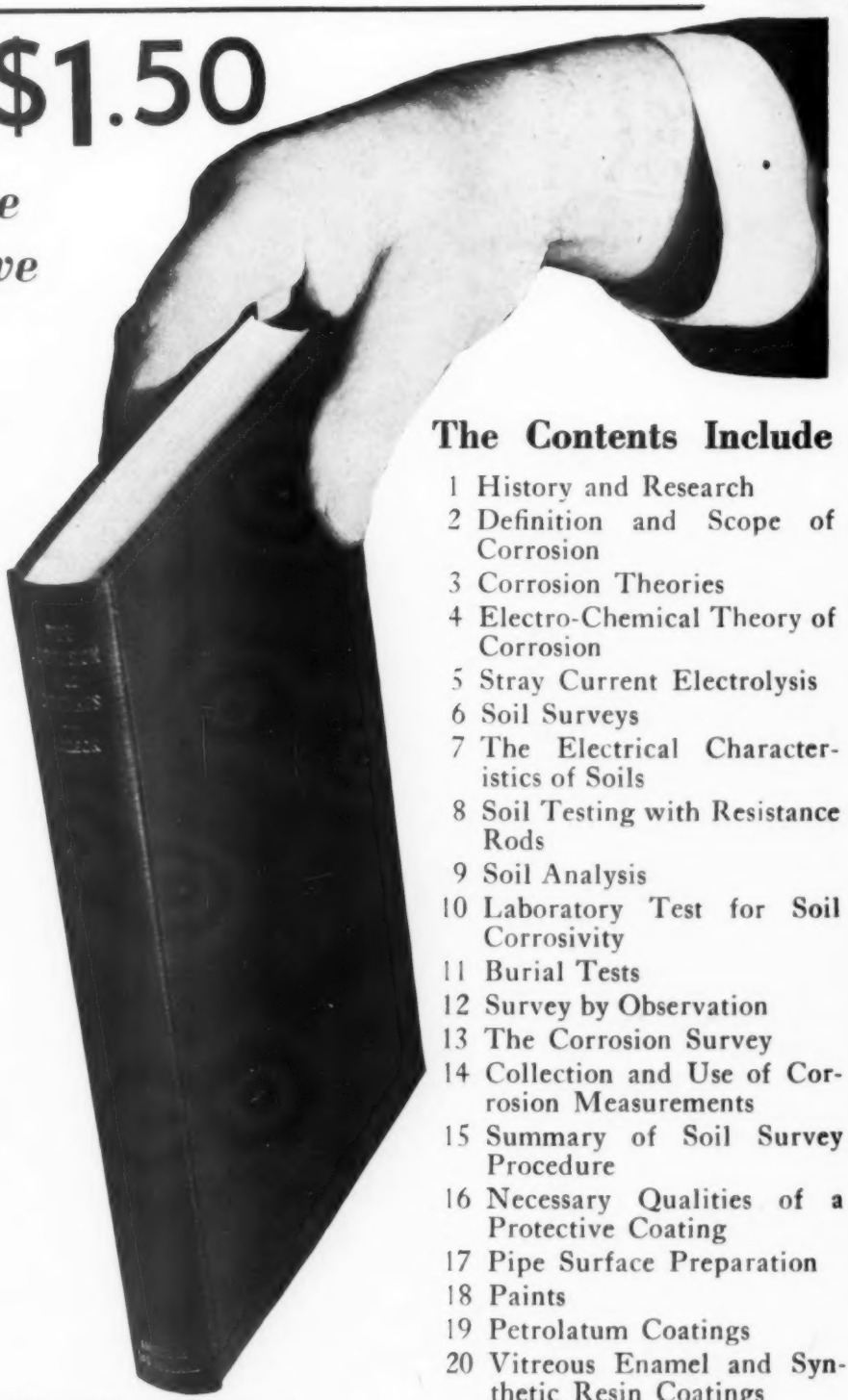

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